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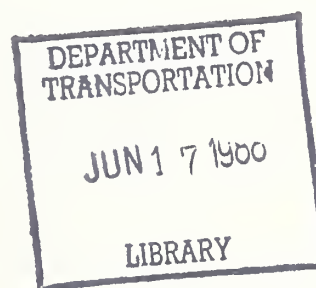
U.S. Department  
of Transportation  
**National Highway  
Traffic Safety  
Administration**

DOT HS 807 242

October 1987

Test Report

# Vehicle Barrier Impact Testing with Hybrid III Dummies in a 1987 Chrysler Lebaron 2-Door Coupe



The United States Government does not endorse products or manufacturers. Trade or manufacturers' names appear only because they are considered essential to the object of this report.

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7. Author(s)  J.W. Sankey, Project Engineer, TRC				8. Performing Organization Report No.  871012	
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				11. Contract or Grant No.  DTNH22-87-C-08123	
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15. Supplementary Notes					
16. Abstract  A 30 mph flat frontal barrier impact test was conducted on a 1987 Chrysler LeBaron 2-door coupe at the Transportation Research Center of Ohio on October 12, 1987, using Hybrid III driver and passenger dummies.  The barrier impact velocity was 29.3 mph.  The ambient temperature was 70°F.					
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SECTION 1.0  
PURPOSE AND INTRODUCTION

## PURPOSE

This 30 mph frontal barrier impact test is part of a program to document the response of Hybrid III occupant dummies conducted for the National Highway Traffic Safety Administration (NHTSA) by the Transportation Research Center of Ohio (TRC) under Contract No. DTNH22-85-C-08123. The purpose of this test was to determine Hybrid III dummy response in the subject vehicle, a 1987 Chrysler LeBaron 2-door coupe. The test was conducted in accordance with the FMVSS 208 portions of the Office of Vehicle Safety Compliance (OVSC) Laboratory Test Procedure No. TP-208-06 dated May 15, 1987, except for the use of Hybrid III dummies in place of Part 572 B dummies.



## TEST SUMMARY

The 1987 Chrysler LeBaron 2-door coupe was equipped with a 2.5 liter transverse engine, manual transmission, power steering, and power brakes. The test weight of the vehicle was 3111 pounds. The Head Injury Criteria (HIC) calculations were less than 1000, the resultant accelerations of the thorax did not exceed 60 g's, and the compressive forces transmitted through the upper legs did not exceed 2,250 pounds as measured by Hybrid III dummies seated in the driver's and right front passenger's seats.

Two Hybrid III, 50th percentile, adult male anthropomorphic test devices (ATDs) were seated in the front outboard designated seating positions. The dummies were positioned according to the dummy placement procedures specified in FMVSS 208 Notice 45.

Both ATDs were instrumented with head and chest accelerometers oriented to measure accelerations in the longitudinal, lateral, and vertical directions, a chest displacement potentiometer, right and left femur load cells, and neck load cells oriented to measure longitudinal and vertical forces and moment about the lateral axis.

The vehicle was instrumented with seven longitudinal axis accelerometers. Seat belt load cells were installed on each occupant's passive seatbelt.

The crash event was recorded by one (1) real time panning camera and fourteen (14) high speed motion picture cameras operating at approximately 500 frames per second.

The thirty-three (33) channels of data were multiplexed and recorded on a 14-track tape drive. The data was digitally sampled at 8000 samples per second digitally processed per sections 12.8 and 12.9 of the laboratory procedure.

The vehicle was impacted into the rigid, flat frontal barrier at the Transportation Research Center of Ohio on October 12, 1987. The test vehicle's impact speed was 29.3 mph. The vehicle sustained 27.8 inches of static crush.

The camera information is presented in Section 3.0. Appendix A contains the still photographic prints. Appendix B contains the vehicle and dummy data plots. Appendix C contains the pre-test dummy performance calibrations.

# CRASH TEST SUMMARY

TEST NO.: 871012

DATE: October 12, 1987

TIME: 1444

TEMP: 70°F

VEHICLE: 1987 Chrysler LeBaron 2-door coupe

TEST WEIGHT (LBS): 3111

IMPACT ANGLE (DEG)\*: 0

IMPACT VELOCITY (MPH)\*\*: PRIMARY = 29.3

SECONDARY = 29.4

MAX CRUSH (IN) STATIC: 27.8

REBOUND (IN): 16.7

DUMMIES: Driver

Passenger

TYPE: Hybrid III

Hybrid III

LOCATION: Front Left

Front Right

RESTRAINT: Two-point passive belt

Two-point passive belt

NUMBER OF DATA CHANNELS: 33

NUMBER OF HIGH SPEED CAMERAS: 14 and 1 real-time camera

\*With respect to tow track centerline.

\*\*Speed trap measurement ( $\pm$  .05mph accuracy).

TEST VEHICLE INFORMATION

VEHICLE MANUFACTURER: Chrysler Corporation

MAKE/MODEL: Chrysler/Lebaron

VIN: 3C3CJ41K6HT739121

BODY STYLE: 2-door coupe

MODEL YEAR: 1987

COLOR: Black

ENGINE DATA: TYPE: Transverse CYLINDERS: 4 DISPLACEMENT: 2.5 liter

X Gas,      DIESEL,      TURBOCHARGE

TRANSMISSION DATA: 5 SPEED, X MANUAL,      AUTOMATIC, X FWD RWD

DATA VEHICLE RECEIVED: 10/02/87

ODOMETER READING: 123

DEALER'S NAME AND ADDRESS: NA

ACCESSORIES:

POWER STEERING Yes

POWER BRAKES Yes

POWER SEATS No

POWER WINDOWS No

TINTED GLASS Yes

RADIO Yes

CLOCK Yes

OTHER None

AUTOMATIC TRANSMISSION No

AUTOMATIC SPEED CONTROL No

TILTING STEERING WHEEL No

TELESCOPING STEERING WHEEL No

AIR CONDITIONING Yes

ANTI-SKID BRAKE No

REAR WINDOW DEFROSTER No

DATA FROM CERTIFICATION LABEL ON LEFT DOOR FACE OR "B" POST:

VEHICLE MANUFACTURED BY: Chrysler de Mexico

DATE OF MANUFACTURER: 5/87

GVWR: 3750 LBS.

CAWR: FRONT 2028 LBS., REAR 1797 LBS.

TEST VEHICLE INFORMATION, CONTINUED

DATA FROM "RECOMMENDED TIRE PRESSURE" LABEL ON DOOR, POST, GLOVEBOX, ETC.

VEHICLE LOAD (UP TO CAPACITY): FRONT 29 psi; REAR 29 psi

RECOMMENDED TIRE SIZE: P185/75R14 LOAD RANGE X B, C, D

TIRES ON VEHICLE (MFG. & LINE, SIZE): Goodyear Vector P185/75R14

IS SPARE TIRE "SPACE SAVER"? Yes

IS SPARE TIRE STANDARD EQUIPMENT? Yes

VEHICLE CAPACITY: TYPES OF SEATS: Front bucket, Rear bench

TYPE OF FRONT SEAT BACKS: Manual adjustable

NUMBER OF OCCUPANTS 2 FRONT 3 REAR 5 TOTAL

CARGO LOAD 115 LBS. TOTAL 865 LBS.

WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (WITH MAXIMUM FLUIDS):

RIGHT FRONT 833 lbs. RIGHT REAR 433 lbs.

LEFT FRONT 885 lbs. LEFT REAR 528 lbs.

TOTAL FRONT WEIGHT 1,718 lbs. (64.1% OF TOTAL VEHICLE WEIGHT)

TOTAL REAR WEIGHT 961 lbs. (35.9% OF TOTAL VEHICLE WEIGHT)

TOTAL DELIVERED WEIGHT 2,679 lbs.

CALCULATION FOR TARGET TEST WEIGHT:

RCLW = RATED CARGO AND LUGGAGE WEIGHT

UDW = UNLOADED DELIVERED WEIGHT (2679 LBS)

VCW = VEHICLE CAPACITY WEIGHT (865 LBS)

DSC = DESIGNATED SEATING CAPACITY (5)

RCLW = VCW - 150 (DCS) = (115 LBS)

TARGET TEST WEIGHT = UDW + RCLW + (2 DUMMIES X 167 LBS/DUMMY)

= 2679 + 115 + 334 LBS

TARGET TEST WEIGHT = 3128 LBS

TEST VEHICLE INFORMATION, CONTINUED

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 98 LBS. CARGO:

RIGHT FRONT        843 lbs.                                RIGHT REAR        682 lbs.

LEFT FRONT        935 lbs.                                LEFT REAR        651 lbs.

TOTAL FRONT WEIGHT    1,778 lbs.    (57.2% OF TOTAL VEHICLE WEIGHT)

TOTAL REAR WEIGHT    1,333 lbs.    (42.8% OF TOTAL VEHICLE WEIGHT)

TOTAL TEST WEIGHT    3,111 lbs.    ( 0.5% UNDER TARGET WEIGHT)

WEIGHT OF BALLAST SECURED IN VEHICLE TRUNK AREA:    0 lbs.

COMPONENTS REMOVED TO MEET TARGET WEIGHT = NONE

VEHICLE ATTITUDE (ALL DIMENSIONS IN INCHES):

DELIVERED ATTITUDE:    LF   27.1;        RF   27.0;        LR   26.8;        RR   26.7

PRE-TEST ATTITUDE:    LF   26.4;        RF   26.8;        LR   25.2;        RR   25.4

POST-TEST ATTITUDE:    LF   29.2;        RF   25.1;        LR   26.0;        RR   24.0

WHEELBASE:    100.5 INCHES

MAX. WIDTH:    68.4 INCHES

CG =   43.1    INCHES REARWARD OF FRONT WHEEL CENTERLINE

TEST VEHICLE INFORMATION, CONTINUED

TEST CONDITIONS

TEST NUMBER: 871012

DATE OF TEST: 10/12/87

TIME OF TEST: 1444

TYPE OF TEST: Frontal Barrier Impact

IMPACT ANGLE: 0°

AMBIENT TEMPERATURE AT IMPACT AREA:

70°F

TEMPERATURE IN OCCUPANT COMPARTMENT:

72°F

IMPACT VELOCITY: PRIMARY = 29.3 MPH

SECONDARY = 29.4 MPH

(SPECIFIED RANGE = 28.9 to 29.9 MPH)

VEHICLE REBOUND AND CRUSH (ALL DIMENSIONS IN INCHES)

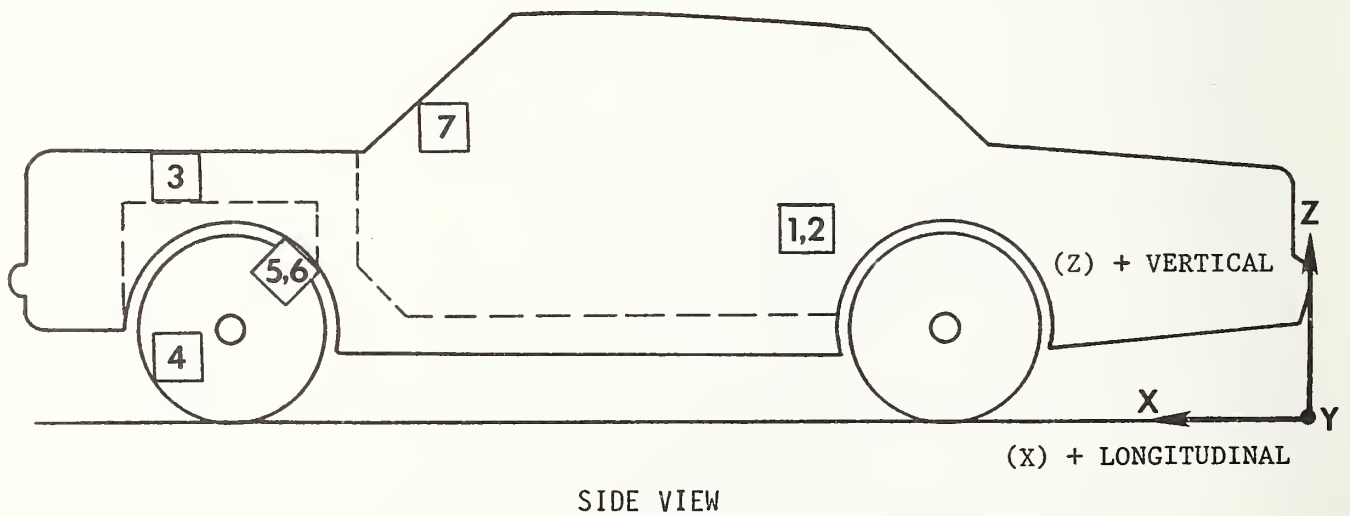
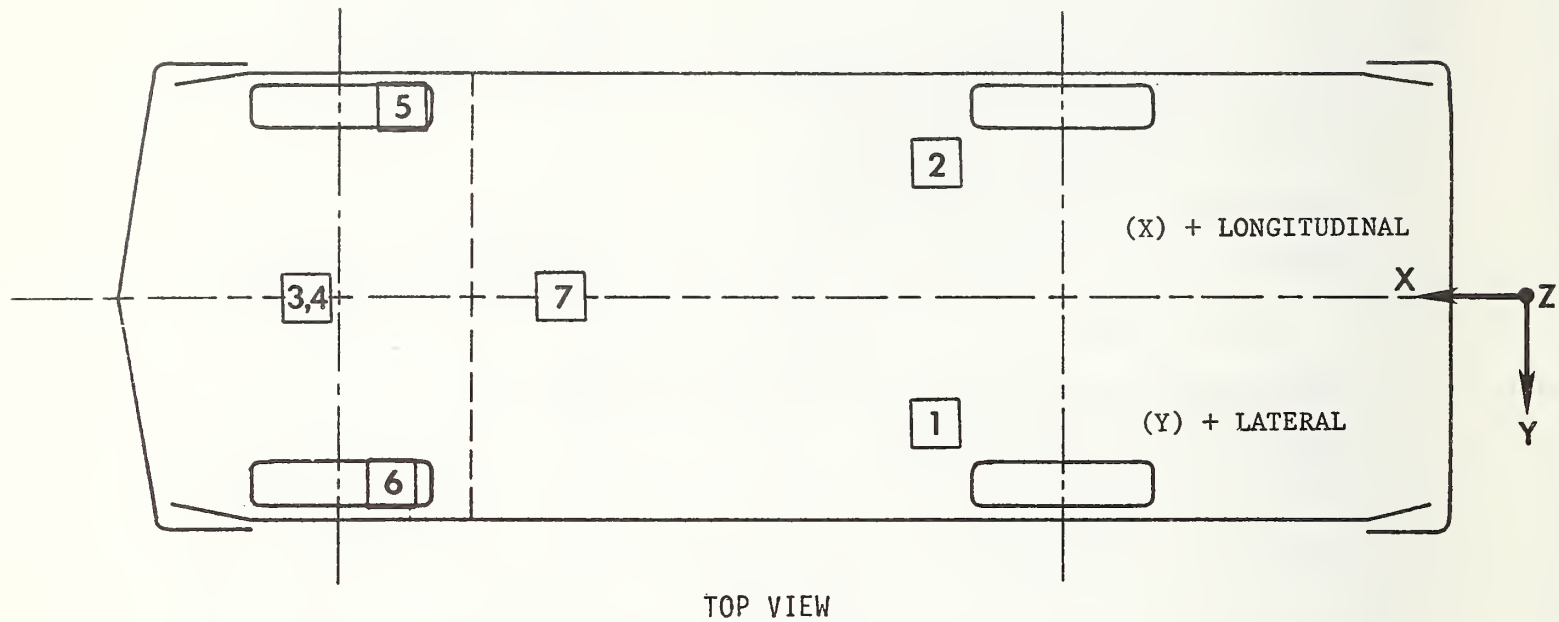
OVERALL LENGTH OF TEST VEHICLE: PRE-TEST: L 180.0 ;C 185.0 ;R 180.1

POST-TEST: L 156.2 ;C 157.2 ;R 157.5

TOTAL CRUSH: L 23.8 ;C 27.8 ;R 22.6

FOR FRONTAL IMPACT, DISTANCE FROM FRONT OF TEST VEHICLE TO BARRIER AFTER  
IMPACT: L: 17.9 ;C: 15.7 ;R: 16.6 :AVG: 16.7

# VEHICLE ACCELEROMETER LOCATIONS





## TEST NUMBER 871012

## VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

No.	LOCATION		X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
						MAX	G MSEC	MAX	G MSEC
1	REAR SEAT CROSSMEMBER AT LEFT SIDE LONGITUDINAL	PRE	66.8	13.5	12.9				
		POST	66.8	13.5	12.9				
						1.5	153.0	22.0	54.1
2	REAR SEAT CROSSMEMBER AT RIGHT SIDE LONGITUDINAL	PRE	66.8	-13.6	12.7				
		POST	66.8	-13.6	12.8				
						1.5	186.9	23.2	56.6
3	TOP OF ENGINE BLOCK LONGITUDINAL	PRE	151.4	4.5	29.5				
		POST	145.2	4.4	31.0				
						5.8	87.1	58.2	49.0
4	BOTTOM OF ENGINE LONGITUDINAL	PRE	150.1	0.0	6.2				
		POST	141.9	0.0	8.5				
						13.9	61.9	51.0	36.4
5	BRAKE CALIPER AT RIGHT SIDE LONGITUDINAL	PRE	144.0	-25.2	11.6				
		POST	141.0	-25.6	11.8				
						40.8	85.8	83.4	63.5
6	BRAKE CALIPER AT LEFT SIDE LONGITUDINAL	PRE	144.1	25.0	11.2				
		POST	141.5	25.5	11.8				
						44.6	89.4	76.3	71.8
7	DASH PANEL LONGITUDINAL	PRE	112.4	0.0	38.4				
		POST	112.2	0.0	38.5				
						30.7	40.3	44.4	93.1

\* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

REFERENCE: X: FORWARD FROM REAR BUMPER  
Y: LEFT FROM VEHICLE CENTERLINE  
Z: UPWARD FROM GROUND LEVEL

# ACCIDENT INVESTIGATION DIVISION DATA

## FOR 30 MPH FRONTAL BARRIER IMPACT

VEHICLE MAKE/MODEL/BODY STYLE: Chrysler LeBaron 2-door coupe

VEH. NHTSA NO.: NA; VIN: 3C3CJ41K6HT739121

MODEL YEAR: 1987; BUILD DATE: 5/87; TEST DATE 10/12/87

VEH. SIZE CATEGORY: Midsize; TEST WEIGHT: 3111 lbs.

VEH. WHEELBASE: 100.5 in. MAX. WIDTH 68.4 in. FRONT OVERHANG 43.4 in.

COLLISION DEFORMATION CLASSIFICATION (CDC) CODE: 12FDEW3

### F (Frontal)

CRUSH DEPTH  
DIMENSIONS:

C1 = 23.8 inches

C2 = 26.1 inches

C3 = 24.9 inches

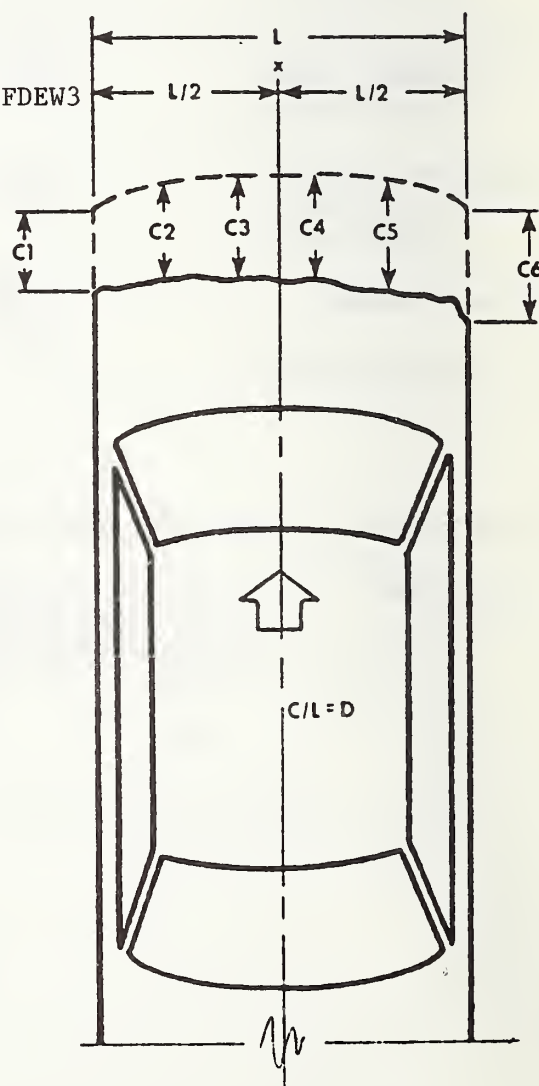
C4 = 24.2 inches

C5 = 23.8 inches

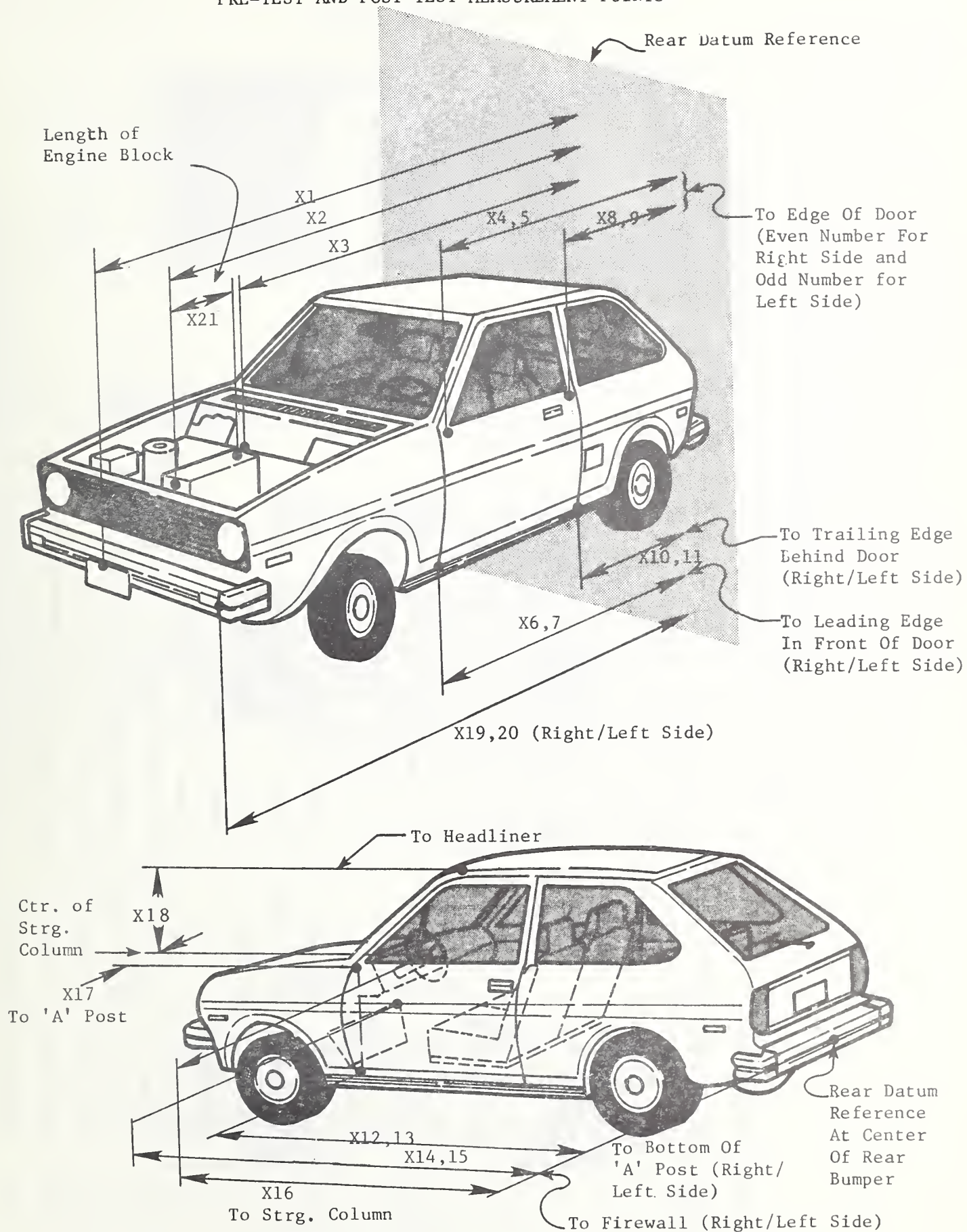
C6 = 22.6 inches

MIDPOINT OF DAMAGE: D = Vehicle Centerline  
(Longitudinal)

LENGTH OF DAMAGED  
REGION: L = 56.2 inches



# PRE-TEST AND POST-TEST MEASUREMENT POINTS





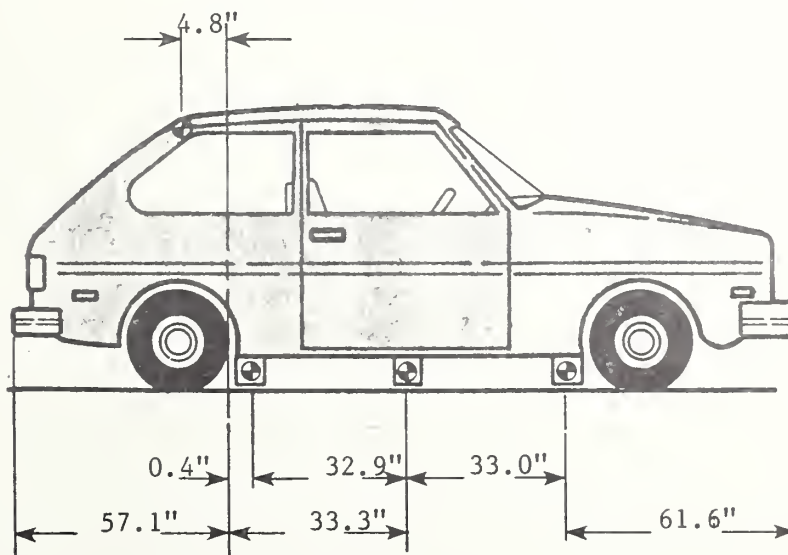
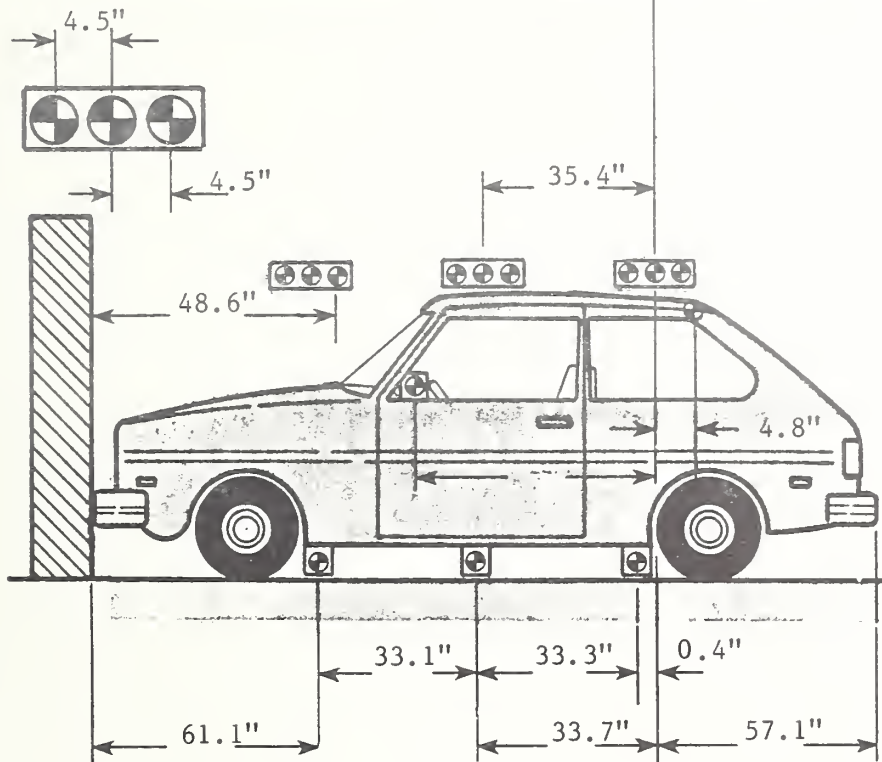
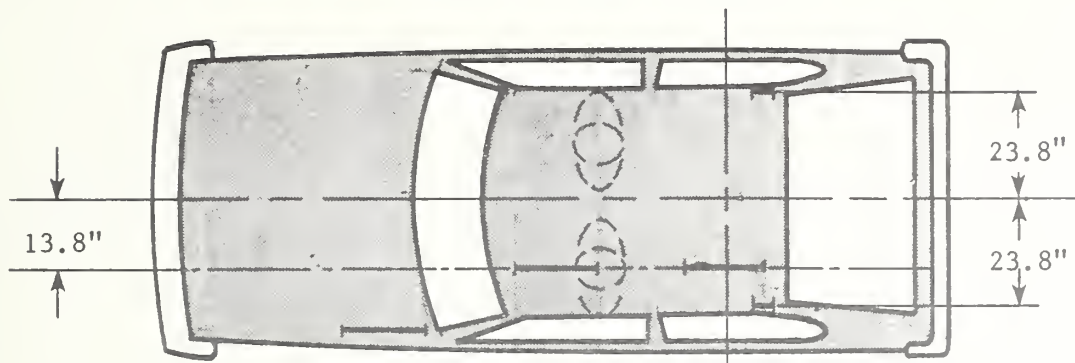
# IMPACTED VEHICLE MEASUREMENTS

VEHICLE MAKE/MODEL

TEST NUMBER

NO.	TYPE OF MEASUREMENT	DIMENSIONS IN INCHES		
		PRE-TEST	POST-TEST	DIFF
X1	TOTAL LENGTH OF VEHICLE AT CENTERLINE	185.0	157.2	27.8
X2	REAR SURFACE OF VEHICLE TO FRONT OF ENGINE BLOCK	151.2	144.2	7.0
X3	REAR SURFACE OF VEHICLE TO FIREWALL	134.1	129.2	4.9
X4	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF RIGHT DOOR	118.2	117.8	0.4
X5	REAR SURFACE OF VEHICLE TO UPPER LEADING EDGE OF LEFT DOOR	117.8	117.4	0.4
X6	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF RIGHT DOOR	121.1	121.1	0.0
X7	REAR SURFACE OF VEHICLE TO LOWER LEADING EDGE OF LEFT DOOR	120.9	120.9	0.0
X8	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF RIGHT DOOR	68.1	67.8	0.3
X9	REAR SURFACE OF VEHICLE TO UPPER TRAILING EDGE OF LEFT DOOR	67.9	67.5	0.4
X10	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF RIGHT DOOR	67.6	67.6	0.0
X11	REAR SURFACE OF VEHICLE TO LOWER TRAILING EDGE OF LEFT DOOR	67.3	67.2	0.1
X12	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON RIGHT SIDE	119.8	119.7	0.1
X13	REAR SURFACE OF VEHICLE TO BOTTOM OF "A" POST ON LEFT SIDE	119.7	119.5	0.2
X14	REAR SURFACE OF VEHICLE TO FIREWALL - RIGHT SIDE	134.2	131.0	3.2
X15	REAR SURFACE OF VEHICLE TO FIREWALL LEFT SIDE	134.2	133.5	0.7
X16	REAR SURFACE OF VEHICLE TO STEERING WHEEL CENTER	103.6	102.2	1.4
X17	CENTER OF STEERING COLUMN TO "A" POST	15.9	13.6	2.3
X18	CENTER OF STEERING COLUMN TO HEADLINING	17.5	17.9	-0.4
X19	REAR SURFACE OF VEHICLE TO RIGHT SIDE OF FRONT BUMPER	180.1	157.5	22.6
X20	REAR SURFACE OF VEHICLE TO LEFT SIDE OF FRONT BUMPER	180.0	156.2	23.8
X21	LENGTH OF ENGINE BLOCK	19.5	19.5	0.0

# VEHICLE TARGET LOCATIONS





SECTION 2.0

SUMMARY OF TEST RESULTS

## DATA SUMMARY

The driver's Head Injury Criteria, HIC, was 613. The driver's maximum chest deceleration over three milliseconds was 48.7 g. The driver's right and left compressive femur loads were 1445 pounds and 910 pounds, respectively. The driver's maximum chest displacement was 2.4 inches.

The right front passenger's Head Injury Criteria, HIC, was 506. The right front passenger's maximum chest deceleration over three milliseconds was 35.5 g. The right front passenger's right and left compressive femur loads were 902 pounds and 883 pounds, respectively. The right front passenger's maximum chest displacement was 2.6 inches.

The vehicle's restraint system met the comfort and convenience requirements of FMVSS 208.



# DUMMY DATA SUMMARY

DRIVER DUMMY					PASSENGER DUMMY				
SN: 045					SN: 143				
POSITIVE		NEGATIVE			POSITIVE		NEGATIVE		
DIRECTION*		DIRECTION**			DIRECTION*		DIRECTION**		
MAX	TIME	MAX	TIME		MAX	TIME	MAX	TIME	
HEAD ACCELERATION (g)									
LONGITUDINAL	34.2	219.8	91.3	88.8	50.8	227.2	36.3	125.8	
LATERAL	17.8	89.9	6.6	238.5	12.4	227.5	10.1	85.5	
VERTICAL	3.4	140.2	37.2	91.0	2.2	0.6	47.5	102.2	
RESULTANT	94.6	88.6			54.7	101.0			
HIC	613 from 86.9 to 113.2				506 from 88.1 to 124.1				
NECK LOADS (lbs)									
SHEAR (X)	310.1	100.0	57.9	229.4	269.4	124.5	16.3	223.2	
AXIAL (Z)	536.3	95.0	35.7	235.5	429.1	115.1	125.2	271.2	
NECK MOMENTS (lb-ft)									
ABOUT LATERAL	18.3	230.5	37.3	102.2	52.5	127.1	15.1	92.8	
CHEST ACCELERATION (g)									
LONGITUDINAL	6.5	225.9	52.3	95.5	6.6	227.1	35.5	94.2	
LATERAL	8.3	92.5	2.3	84.9	3.4	127.4	4.6	109.4	
VERTICAL	2.8	138.0	11.1	92.8	4.2	74.0	5.3	87.9	
RESULTANT	53.1	95.5			35.7	90.5			
3 MSEC CLIP	48.7				35.5				
CHEST DISPLACEMENT (in)									
	2.4	95.4	0.0	18.8	2.6	109.9	0.0	0.0	
FEMUR LOADS (lbs)									
LEFT	91.3	140.2	909.7	85.0	321.0	140.2	883.0	80.0	
RIGHT	79.2	45.4	1445.4	83.0	61.4	140.2	902.0	82.5	
*LONGITUDINAL:	FORWARD				**LONGITUDINAL:	REARWARD			
LATERAL:	LEFTWARD				LATERAL:	RIGHTWARD			
VERTICAL:	UPWARD				VERTICAL:	DOWNWARD			
DISPLACEMENT:	INWARD				DISPLACEMENT:	OUTWARD			
FORCE:	TENSION				FORCE:	COMPRESSION			

SEAT BELT DATA SUMMARY

<u>LOCATION</u>	<u>SEAT BELT TENSION</u>	
	<u>MAX. LBS.</u>	<u>TIME.MSEC.</u>
DRIVER PASSIVE BELT INBOARD	1112.8	97.2
RIGHT FRONT PASSENGER PASSIVE BELT INBOARD	1300.0	102.9

## DUMMY KINEMATIC SUMMARY

### DRIVER DUMMY

Upon impact, the driver dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head and upper torso rotated forward until the forehead impacted the upper steering wheel rim and the chin contacted the steering wheel hub. The dummy's chest contacted the lower steering wheel rim. The dummy's upper torso rotated rearward until it contacted the seat back. The dummy's head contacted the head restraint. The dummy came to rest seated upright in the driver's seat facing forward.

### PASSENGER DUMMY

Upon impact, the passenger dummy translated forward on the seat impacting both knees into the instrument panel. The dummy's head rotated forward until the chin contacted the upper chest. The dummy's torso rotated forward until arrested by the two-point restraint system. The dummy's upper torso rotated rearward into the seat back. The dummy's buttocks had translated forward sufficiently so that on rebound the head contacted the lower edge of the head restraint and the upper edge of the seat back. The dummy came to rest facing forward and seated partially forward in the passenger's seat.

VISIBLE DUMMY CONTACT POINTS:

	DRIVER	PASSENGER
Head	<u>Steering wheel rim and hub</u>	<u>Upper chest</u>
Chest	<u>Lower steering wheel rim</u>	<u>None</u>
Abdomen	<u>None</u>	<u>None</u>
Left Knee	<u>Instrument panel</u>	<u>Instrument panel</u>
Right Knee	<u>Instrument panel</u>	<u>Instrument panel</u>

DOOR OPENING:

	LEFT	RIGHT
Front	<u>Easy</u>	<u>Easy</u>
Rear	<u>NA</u>	<u>NA</u>

SEAT MOVEMENT:

	SEAT BACK FAILURE	SEAT SHIFT
Front	<u>None</u>	<u>None</u>
Rear	<u>NA</u>	<u>NA</u>

GLAZING DAMAGE: The windshield was shattered.

\_\_\_\_\_

\_\_\_\_\_

OTHER NOTABLE IMPACT EFFECTS:

None

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

DUMMY POSITIONING DATA FOR  
30 MPH FRONTAL BARRIER IMPACT TEST

**PRE-IMPACT DATA:**

**Make/Model:** Chrysler LeBaron

**Body Style:** 2-door coupe

**NHTSA No.:** NA

**Model Year:** 1987

**Color:** Black

**DATA FROM CERTIFICATION LABEL:**

**Vehicle Manufacturer:** Chrysler Corporation

**Date of Manufacture:** 5/87; **VIN:** 3C3CJ41K6HT739121

**GVWR:** 3750 lb; **GAWR: Front =** 2028 lb; **Rear =** 1797 lb

**POST-IMPACT DATA:**

**Date of Test:** 10/12/87 **Time:** 1440 **Temperature** 70 °F

**Required Impact Velocity Range:** 29.8 to 29.9 mph

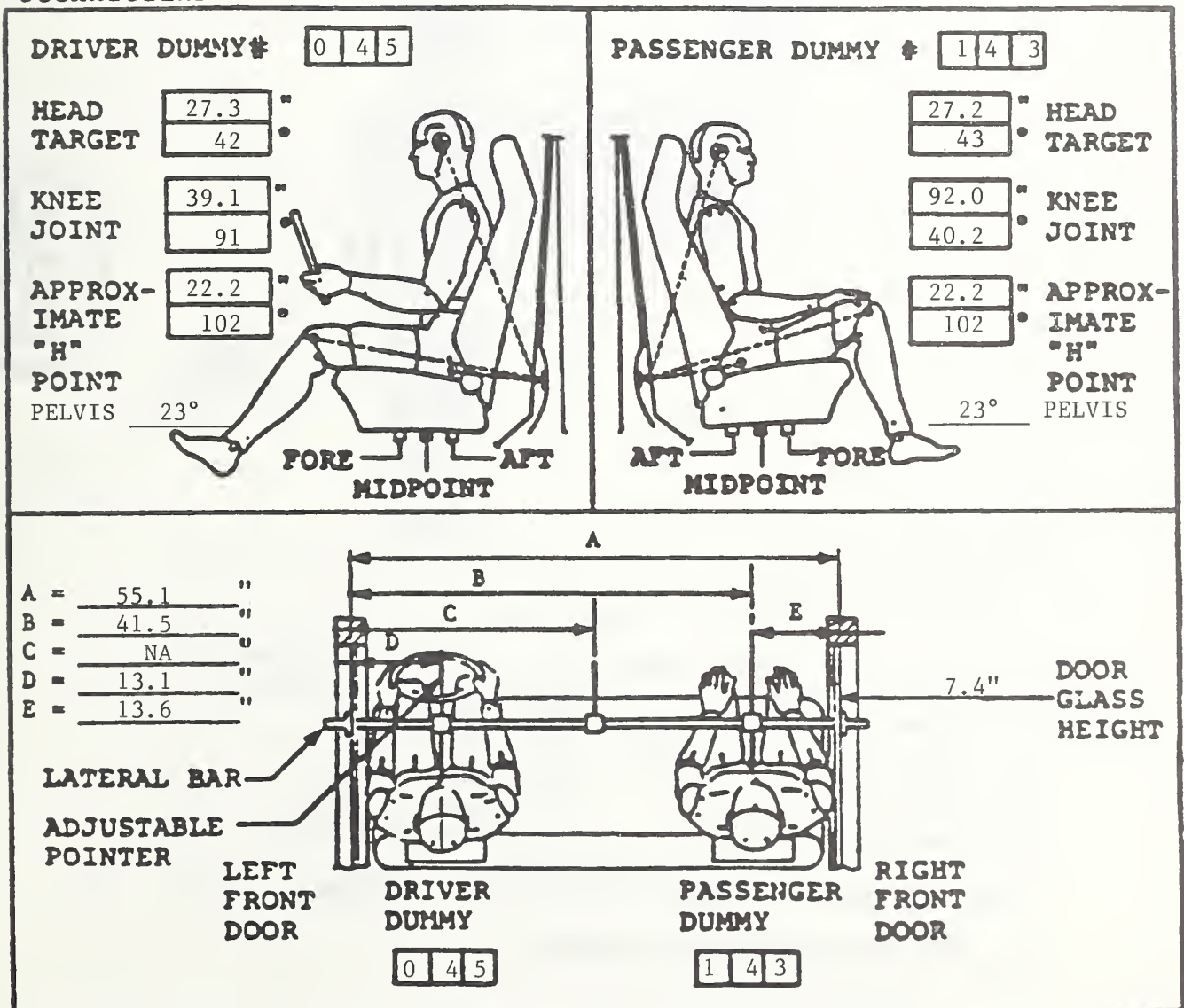
**Impact Velocity: Primary =** 29.3 mph **Secondary =** 29.4 mph

**Seat Type:** Bucket

**Adjuster Type:** Manual

**Bucket Seat Back Type:** Manual adjustable

**Technicians:**



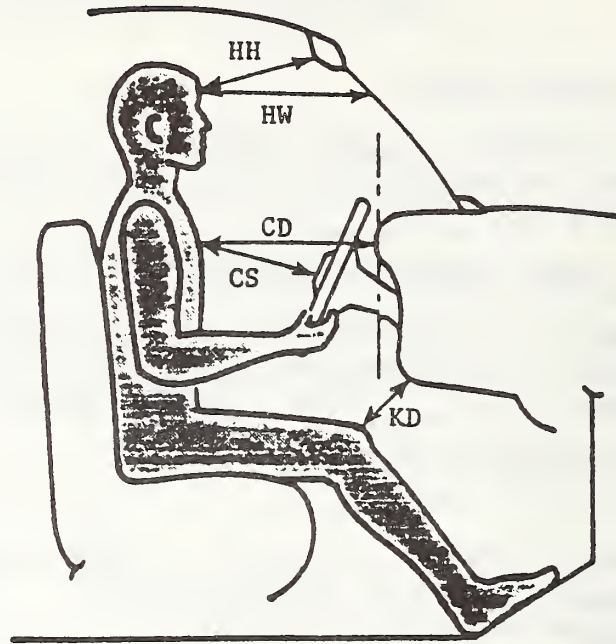


# DUMMY IN-VEHICLE POSITION RECORDING SHEET

DRIVER  
#45

PASSENGER  
#143

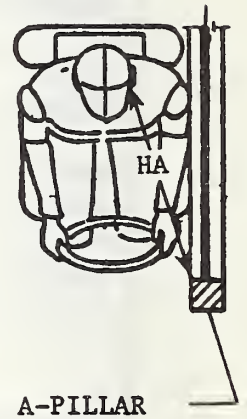
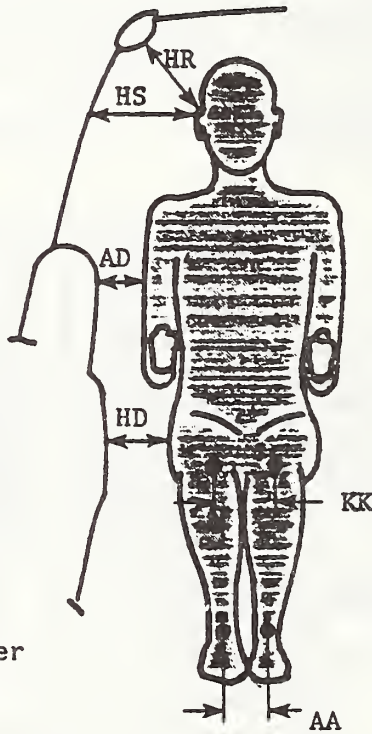
HH	9.0	10.0
HW	15.1	14.9
CD	18.2	20.8
CS	11.2	NA
KDL	4.2	3.9
KDR	4.1	3.6
TA	17°	18°
SA	26°	26°
HA	15.8	14.9



DRIVER  
#45

PASSENGER  
#143

HR	5.8	4.8
HS	8.6	8.5
AD	4.1	4.6
HD	7.8	8.3
KK	8.5	8.4
AA	11.9	6.9



Knee outer bolt head to outer bolt head spacing:

Driver = 10.6

Passenger = 10.6

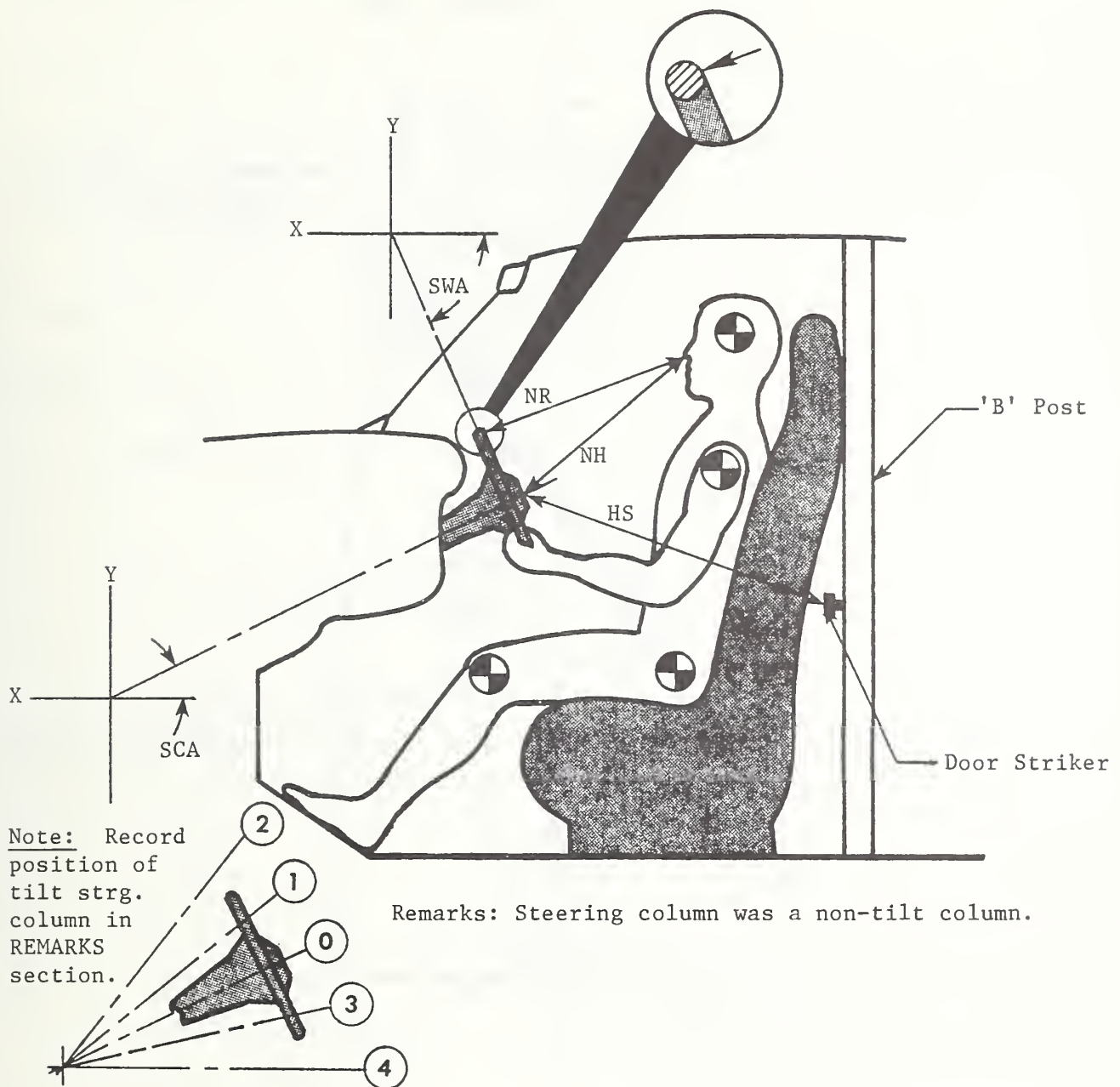
HH = Head to Windshield Header  
HW = Head to Windshield  
CD = Chest to Dash  
CS = Chest to Steering Wheel  
KD = Knee to Dash  
TA = Torso Angle  
SA = Seat Back Angle

HR = Head to Side Roof  
HS = Head to Side Window  
AD = Arm to Door  
HD = Hip to Door  
KK = Knee to Knee  
AA = Ankle to Ankle  
HA = Head to A Pillar

Torso and seat back angles are relative to vertical.

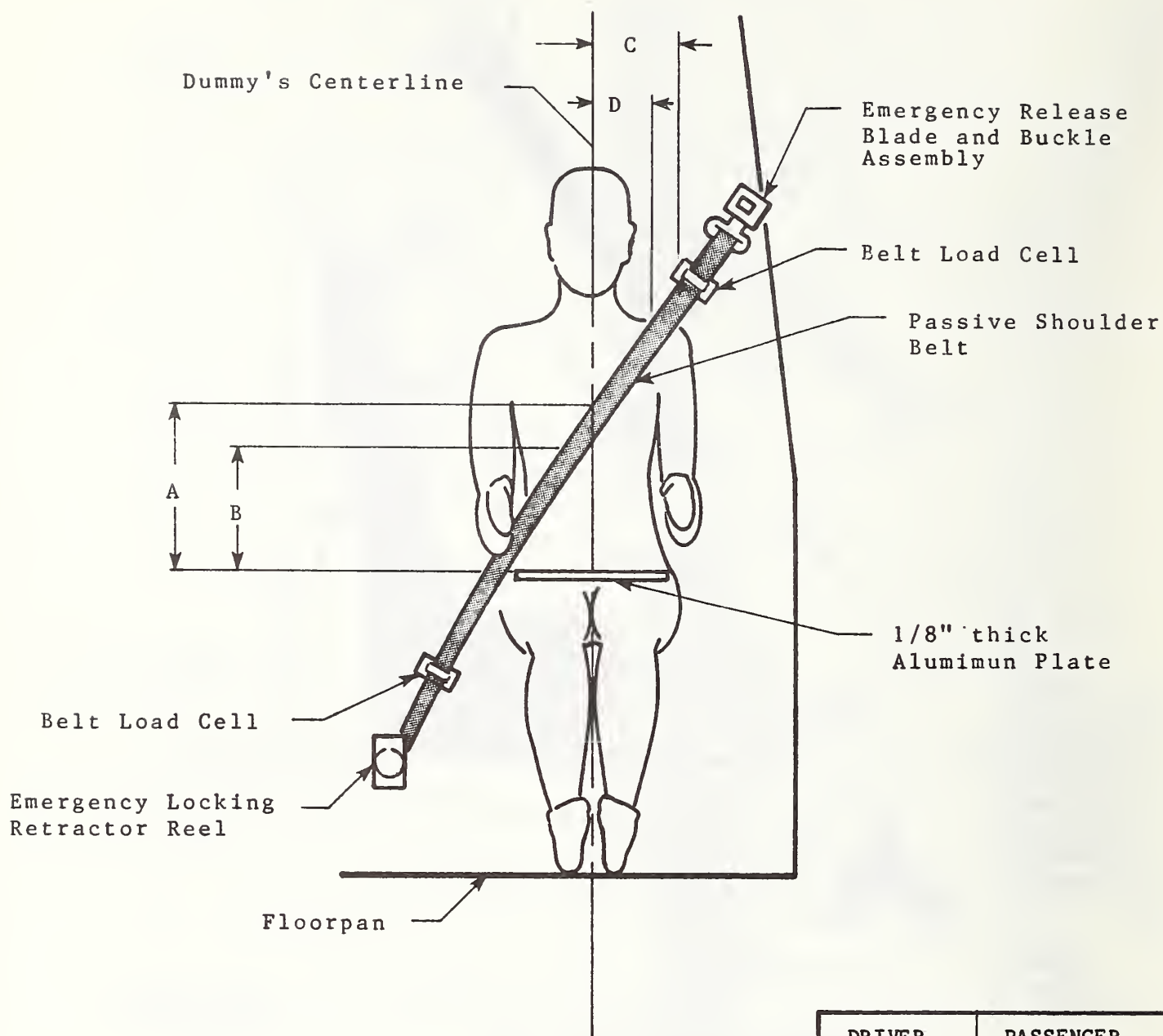
ALL DISTANCE MEASUREMENTS IN INCHES

# DRIVER DUMMY TO STEERING COLUMN/WHEEL ASSY. REFERENCE DIMENSIONS



MEASUREMENTS	
NR - Distance from tip of dummy's nose to top rear surface of steering wheel rim.	12.7
NH - Distance from tip of dummy's nose to center of steering column hub.	14.4
HS - Distance from center of steering column hub to the forward surface of the door lock striker pin.	36.8
SCA - Angle of steering column relative to the horizontal X axis.	21°
SWA - Angle of steering wheel relative to the horizontal X axis.	69°

# SEAT BELT POSITIONING DATA



	DRIVER DUMMY	PASSENGER DUMMY
A - Top surface of alum. plate to belt upper edge (in)	9.8	10.5
B - Top surface of alum. plate to belt lower edge (in)	6.8	7.5
C - Dummy centerline to outer edge of belt at chest flesh top (in)	5.8	6.2
D - Dummy centerline to inner edge of belt at chest flesh top (in)	3.5	4.0



FMVSS 208 COMFORT AND CONVENIENCE DATA

VEHICLE VIN NO.: 3C3CJ41K6HT739121

MAKE: Chrysler MODEL: LeBaron

VEHICLE BUILD DATE: 5/87 VEHICLE TYPE 2 door coupe

FRONT OUTBOARD SEATING POSITIONS SEAT BELT TYPE:

(check one): X Automatic belts  
                           Type 2 lap/shoulder belts  
                           Other

CONVENIENCE HOOKS: NA, vehicle's restraint system did not include convenience hooks.

WEBBING TENSION - RELIEVING DEVICE:

DO OUTBOARD SEATING POSITION BELTS HAVE TENSION - RELIEVING DEVICES?

No

MAXIMUM SLACK RECOMMENDED IN OWNERS MANUAL: NA INCHES

DOES OWNER'S MANUAL WARN THAT INTRODUCING SLACK BEYOND THE AMOUNT SPECIFIED CAN SIGNIFICANTLY REDUCE THE EFFECTIVENESS OF THE SHOULDER BELT?

NA

IF NO, EXPLAIN

AUTOMATIC BELTS: IS TENSION - RELIEVING DEVICE CANCELLED EACH TIME THE ADJACENT DOOR IS OPENED? NA

IF NO, EXPLAIN:

BELT CONTACT FORCE: NA

LATCHPATE ACCESS: NA

RETRACTION: NA

ACCESSIBILITY: NA

LATCH MECHANISM: NA

FMVSS NO. 208 - SEAT BELT WARNING SYSTEM DATA

WITH OCCUPANT IN DRIVER'S POSITION AND LAP BELT IN STOWED POSITION AND  
IGNITION SWITCH PLACED IN "START/ON" POSITION:

Duration of audible warning signal = 6 sec.

Duration of reminder light operation = 110 sec.

WITH OCCUPANT IN DRIVER'S POSITION AND LAP BELT IN USE AND THE IGNITION  
SWITCH PLACED IN "START/ON" POSITION:

Duration of audible warning signal - 0 sec.

(Note: audible warning should not operate)

Duration of reminder light operation = 6 sec.

Wording of visual warning:

Fasten Seat Belt           

Fasten Belt           

Symbol 101-80     X

FMVSS NO. 208 - LABELING AND DRIVER'S MANUAL DATA

DESCRIBE LOCATION OF LABEL WHICH DESCRIBES MANUFACTURER'S MAINTENANCE OR REPLACEMENT SCHEDULE FOR CRASH-DEPLOYED OCCUPANT PROTECTION SYSTEM: NA, vehicle did not contain a crash-deployed occupant protection system.

FMVSS NO. 208 - READINESS INDICATOR DATA

AN OCCUPANT RESTRAINT SYSTEM THAT DEPLOYS IN THE EVENT OF A CRASH SHALL HAVE A MONITORING SYSTEM WITH A READINESS INDICATOR. A TOTALLY MECHANICAL SYSTEM IS EXEMPT FROM THIS REQUIREMENT. NA, vehicle did not contain a crash-deployed occupant protection system.

SECTION 3.0

CAMERA INFORMATION

# HIGH SPEED CAMERA LOCATIONS

TEST NO.: 871012 VEHICLE: Chrysler LeBaron

CAMERA NO.	VIEW	CAMERA POSITIONS (IN)*			ANGLE ** (DEG)	FILM PLANE TO HEAD TARGET	LENS (MM)	SPEED (FPS)
		X	Y	Z				
1	Real time panning	-142.0	504.0	61.0	NA	NA	16	24
2	Vehicle crush	-81.3	266.4	37.1	-2	NA	13	502
3	Dummy kinematics	-41.5	-295.0	44.0	-4	237.5	25	502
4	Windshield damage	-6.0	0.0	89.0	40	NA	8.5	502
5	Crush & fluid spillage	-50.5	0.0	-92.4	90	NA	13	1002
6	Fluid spillage	-99.3	0.0	-99.0	90	NA	13	1000
7	Passenger kinematics	-4.5	13.8	93.0	-50	NA	17	502
8	Driver kinematics	-6.8	-14.5	93.0	-50	NA	17	502
9	Driver kinematics	-157.3	116.0	87.0	-27	119.5	25	500
10	Passenger kinematics	-152.1	-116.0	87.0	-26	118.0	25	500
11	Windshield intrusion	-38.1	306.1	44.0	0	NA	50	502
12	Windshield intrusion	-53.0	-309.4	42.3	0	NA	50	502
13	Column movement	-158.0	-286.0	103.0	-14	NA	25	500
14	Column movement	-158.0	-286.0	75.1	-9	NA	25	500
15	Passenger kinematics	-38.8	293.0	45.3	-4	238.0	25	485

\* X = Film plane to plane of barrier face  
Y = Film plane to monorail centerline  
Z = Film plane to ground  
\*\* Referenced to horizontal plane

## APPENDIX A

### PHOTOGRAPHS

1. PRE-TEST FRONT VIEW
2. POST-TEST FRONT VIEW
3. PRE-TEST LEFT SIDE VIEW
4. POST-TEST LEFT SIDE VIEW
5. PRE-TEST RIGHT SIDE VIEW
6. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW
7. PRE-TEST LEFT REAR THREE-QUARTER VIEW
8. POST-TEST LEFT REAR THREE-QUARTER VIEW
9. PRE-TEST REAR VIEW
10. POST-TEST REAR VIEW
11. PRE-TEST WINDSHIELD VIEW
12. POST-TEST WINDSHIELD VIEW
13. PRE-TEST ENGINE COMPARTMENT VIEW
14. POST-TEST ENGINE COMPARTMENT VIEW
15. PRE-TEST FRONT UNDERBODY VIEW
16. POST-TEST FRONT UNDERBODY VIEW
17. PRE-TEST REAR UNDERBODY VIEW
18. POST-TEST REAR UNDERBODY VIEW
19. PRE-TEST DRIVER DUMMY POSITION VIEW
20. POST-TEST DRIVER DUMMY POSITION VIEW
21. PRE-TEST PASSENGER DUMMY POSITION VIEW
22. POST-TEST PASSENGER DUMMY POSITION VIEW
23. PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR VIEW
24. POST-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 1
25. POST-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 2
26. PRE-TEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW
27. POST-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 1
28. POST-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 2
29. POST-TEST DRIVER DUMMY HEAD/KNEE CONTACT - VIEW 1
30. POST-TEST DRIVER DUMMY HEAD/KNEE CONTACT - VIEW 2

PHOTOGRAPHS CONTINUED

- 31. POST-TEST DRIVER DUMMY HEAD/KNEE CONTACT - VIEW 3
- 32. POST-TEST DRIVER DUMMY HEAD/KNEE CONTACT - VIEW 4
- 33. POST-TEST PASSENGER HEAD/KNEE CONTACT - VIEW 1
- 34. POST-TEST PASSENGER HEAD/KNEE CONTACT - VIEW 2
- 35. PRE-TEST VEHICLE CERTIFICATION LABEL VIEW
- 36. PRE-TEST VEHICLE TIRE LOAD LABEL VIEW





Figure 1. PRE-TEST FRONT VIEW

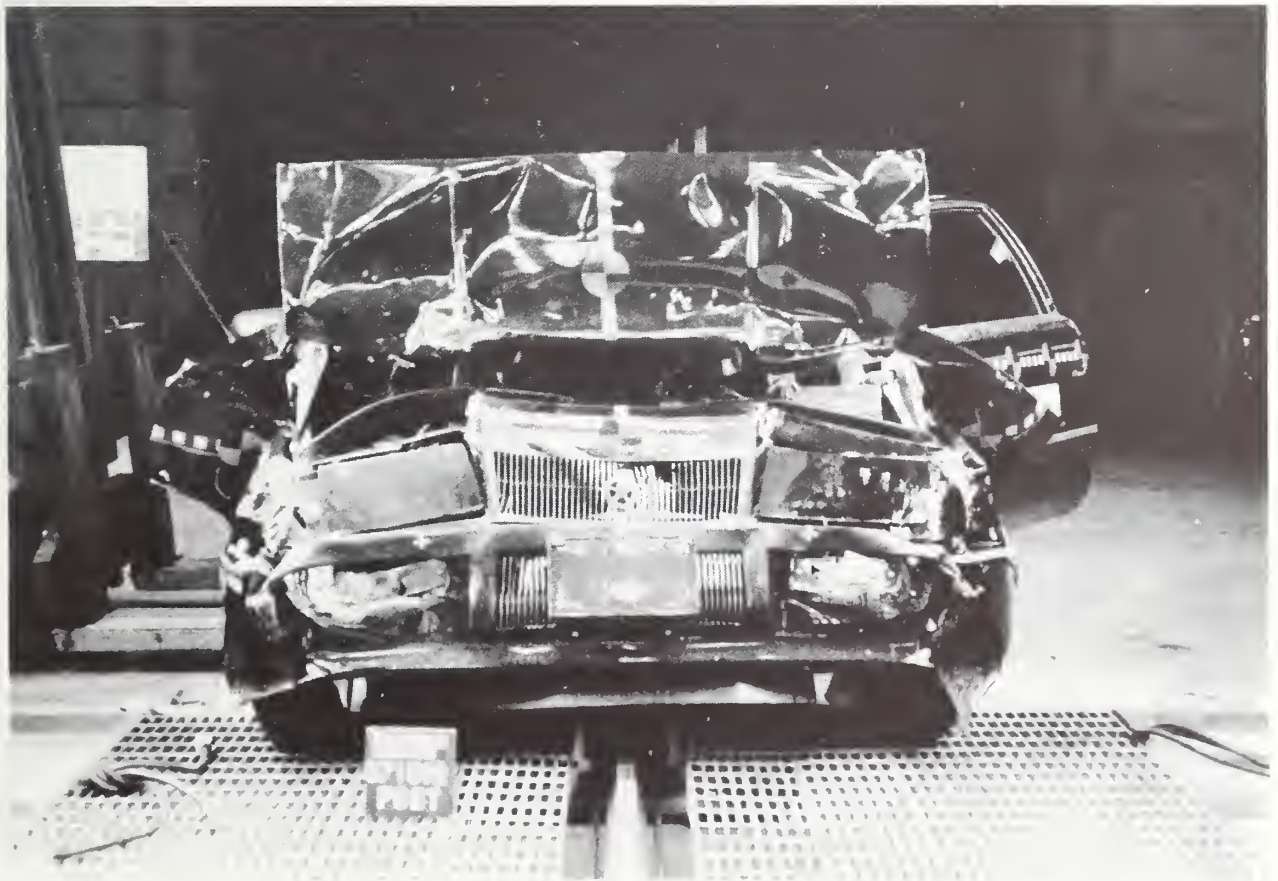


Figure 2. POST-TEST FRONT VIEW





Figure 3. PRE-TEST LEFT SIDE VIEW

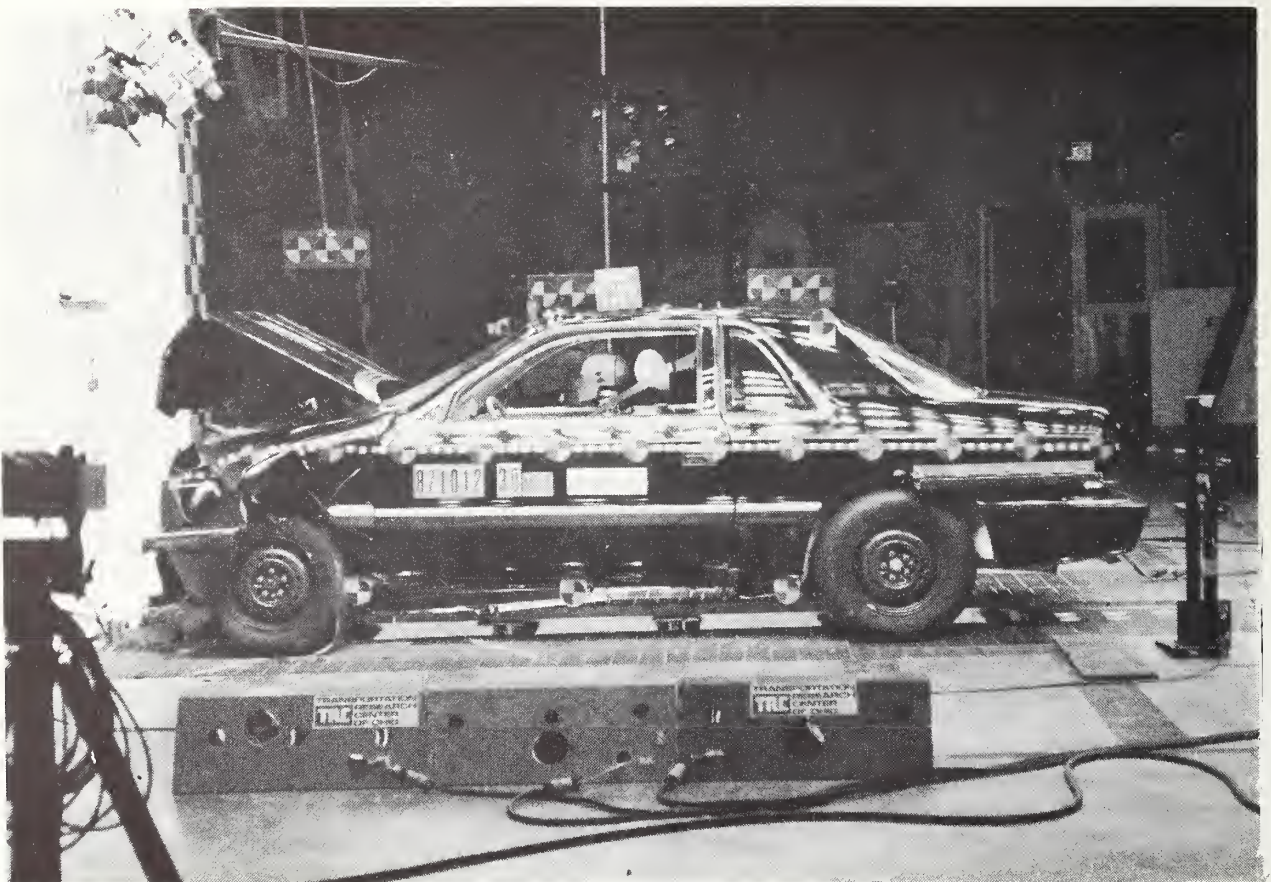


Figure 4. POST-TEST LEFT SIDE VIEW



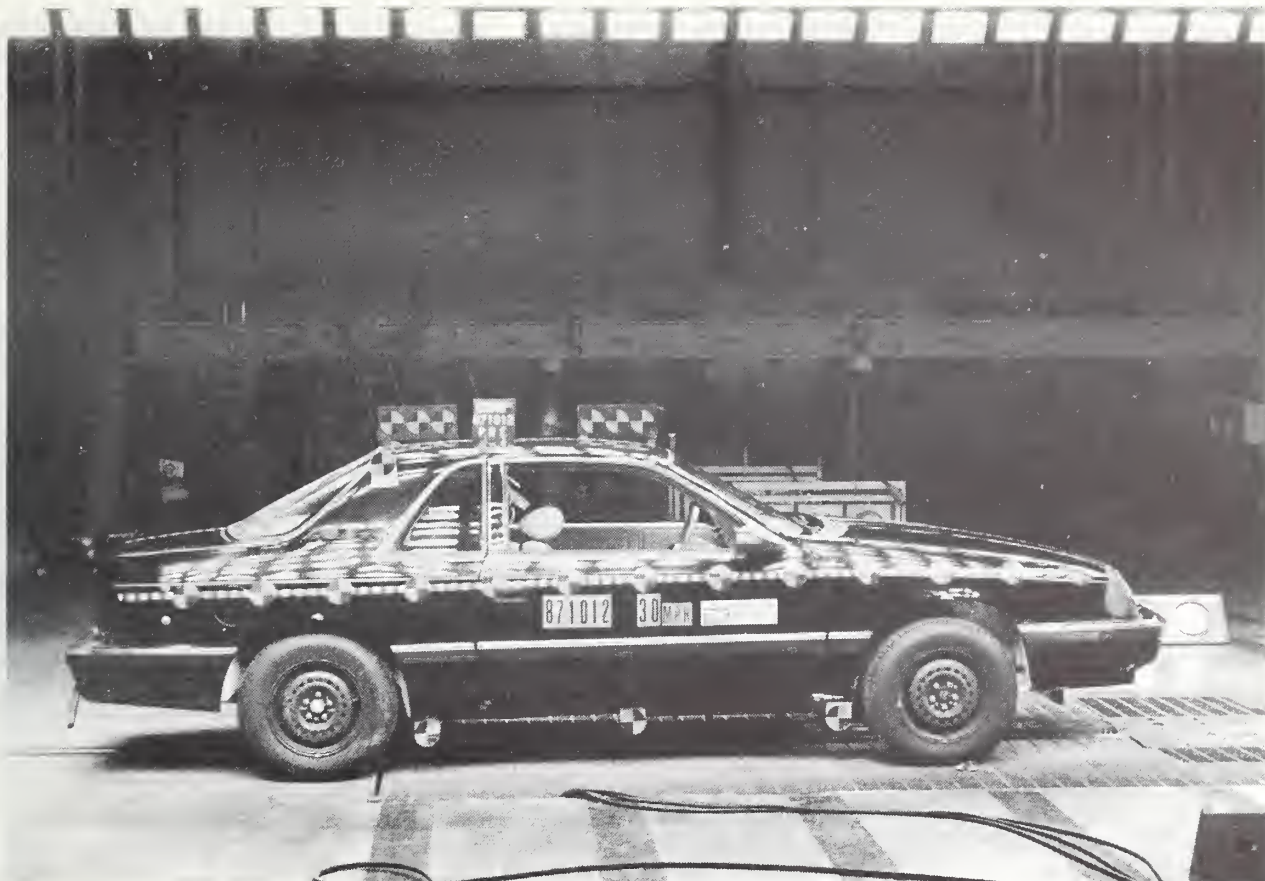


Figure 5. PRE-TEST RIGHT SIDE VIEW



Figure 6. PRE-TEST RIGHT FRONT THREE-QUARTER VIEW





Figure 7. PRE-TEST LEFT REAR THREE-QUARTER VIEW

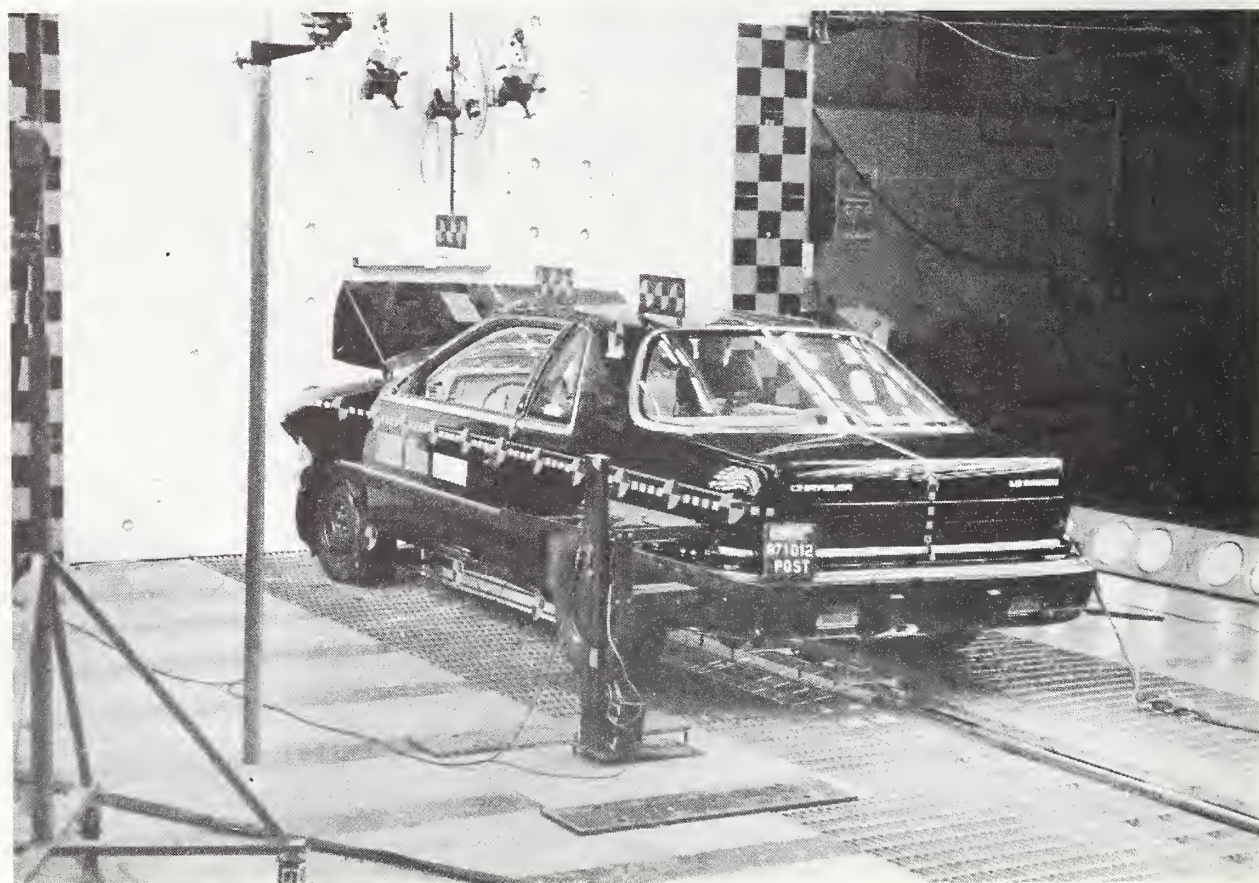


Figure 8. POST-TEST LEFT REAR-QUARTER VIEW  
A-6





Figure 9. PRE-TEST REAR VIEW

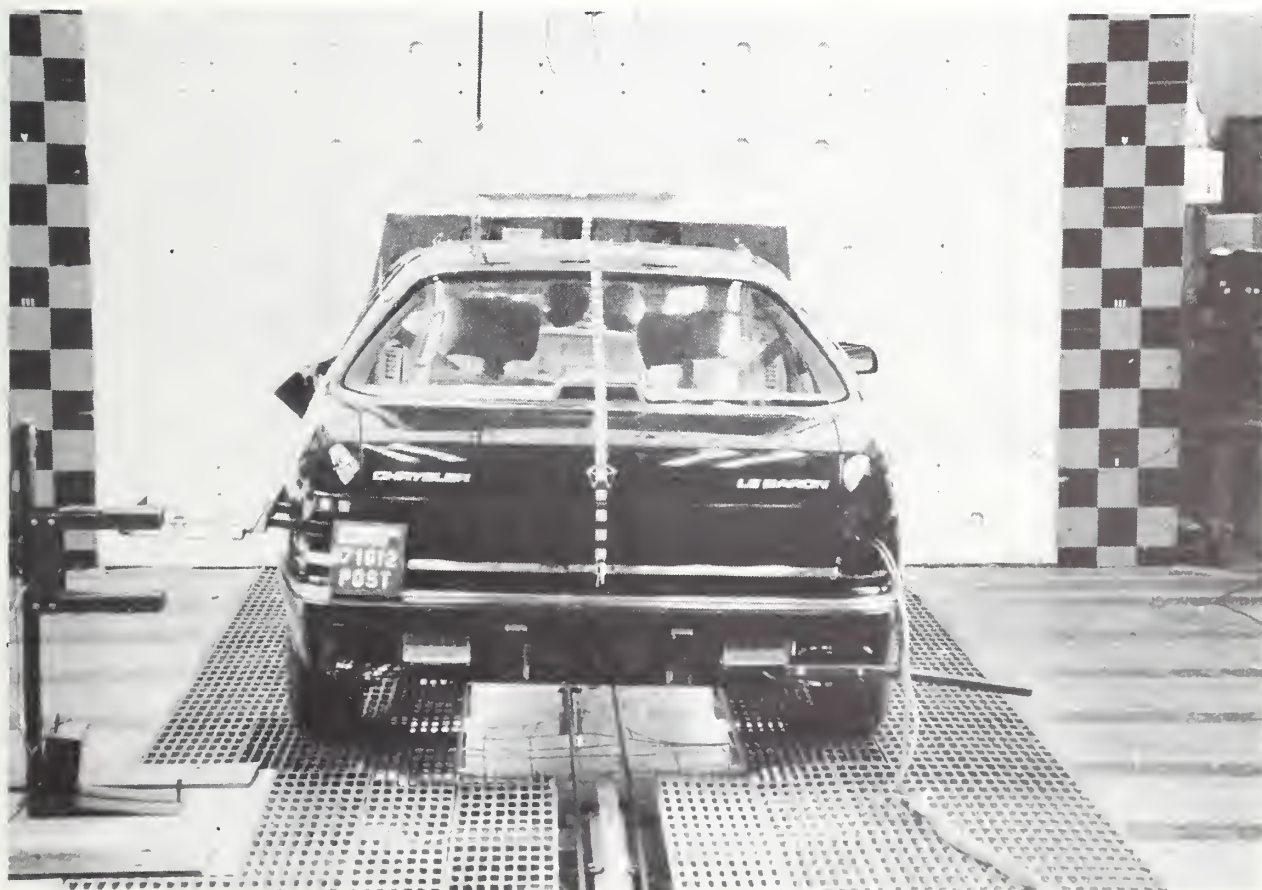


Figure 10. POST-TEST REAR VIEW



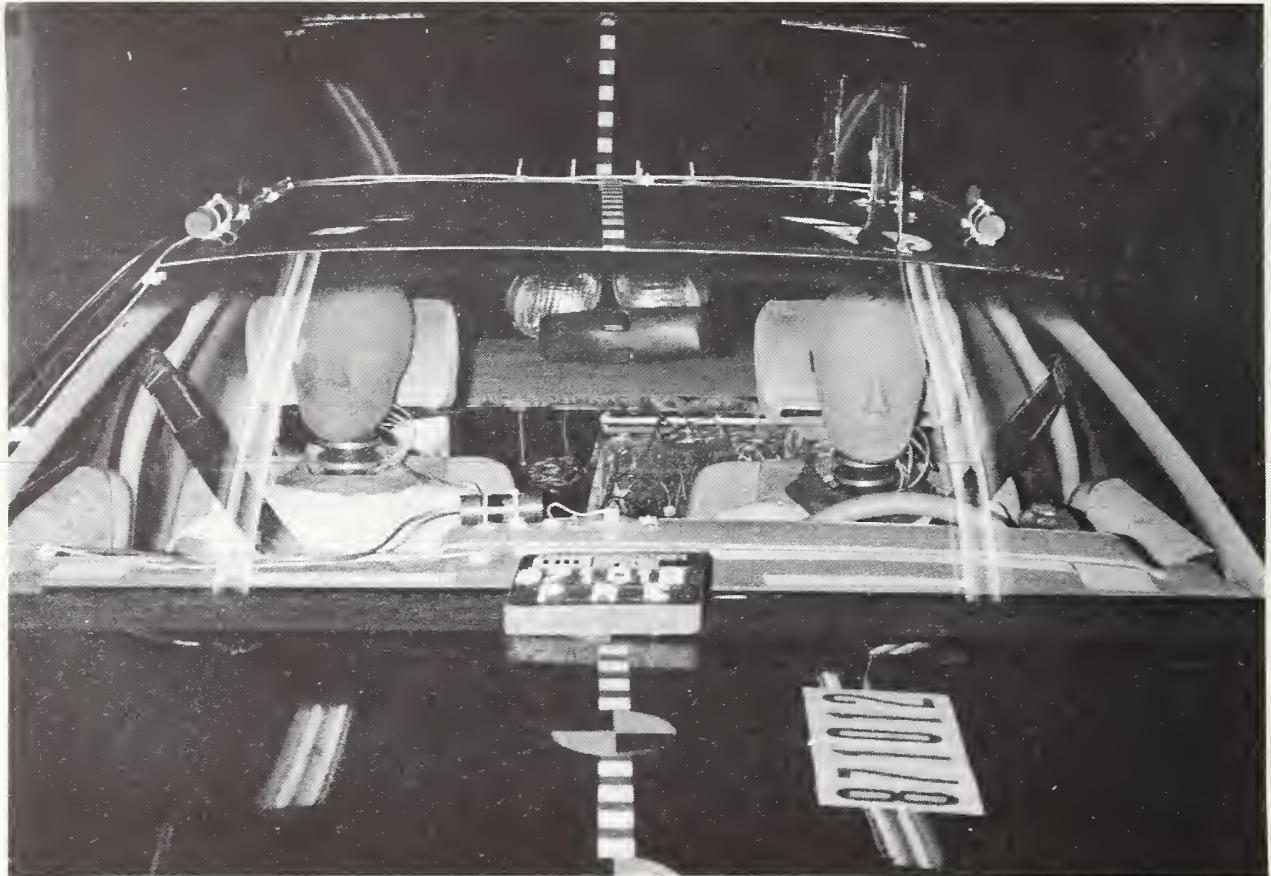


Figure 11. PRE-TEST WINDSHIELD VIEW

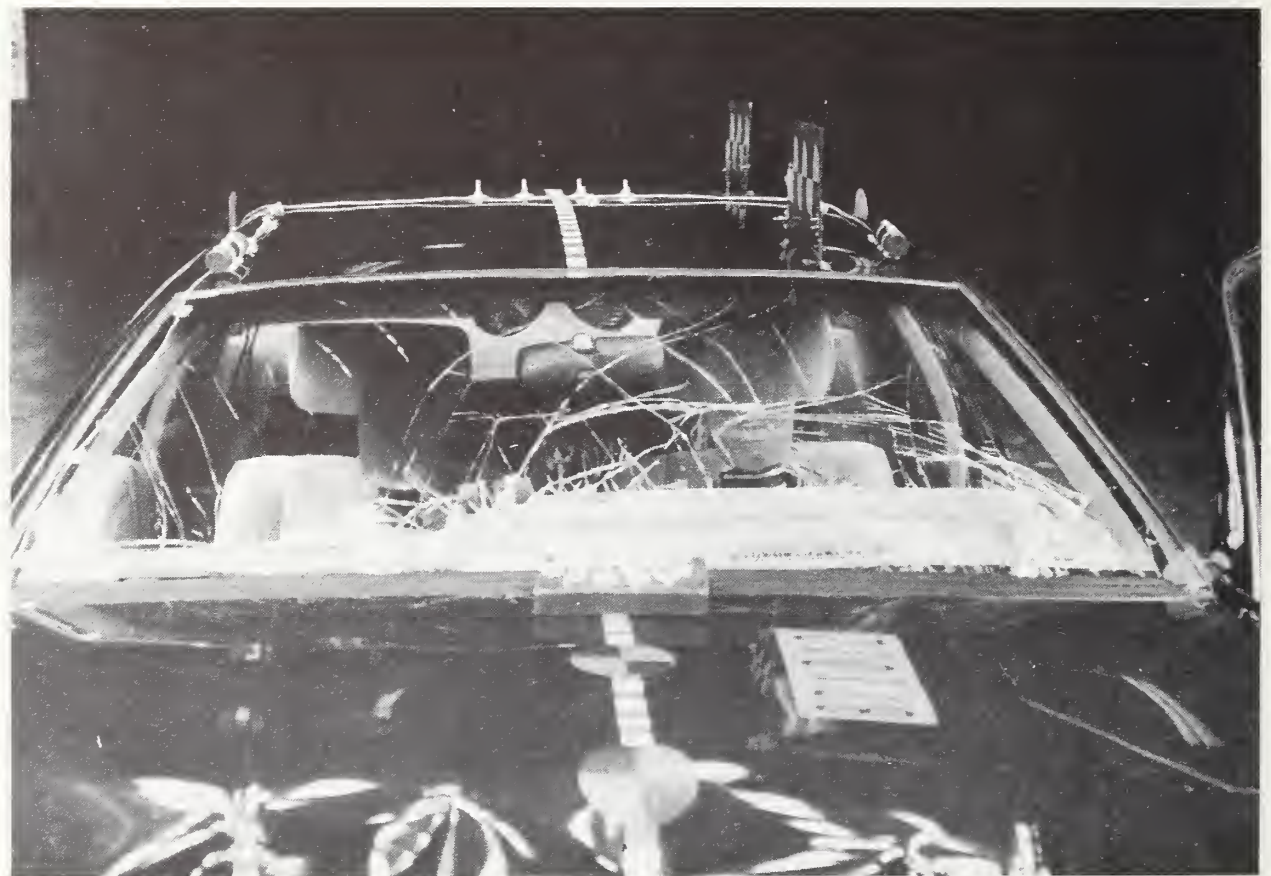


Figure 12. POST-TEST WINDSHIELD VIEW  
A-8



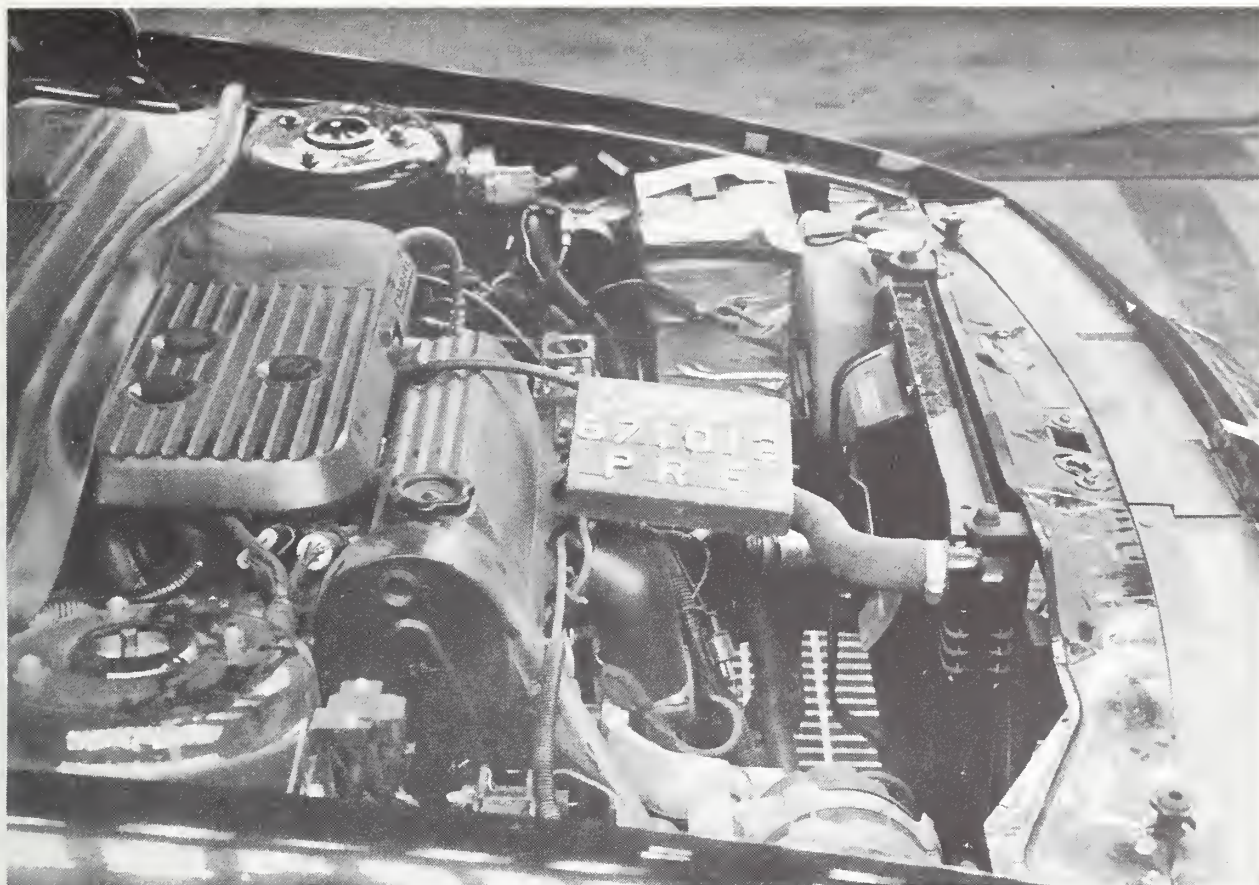


Figure 13. PRE-TEST ENGINE COMPARTMENT VIEW

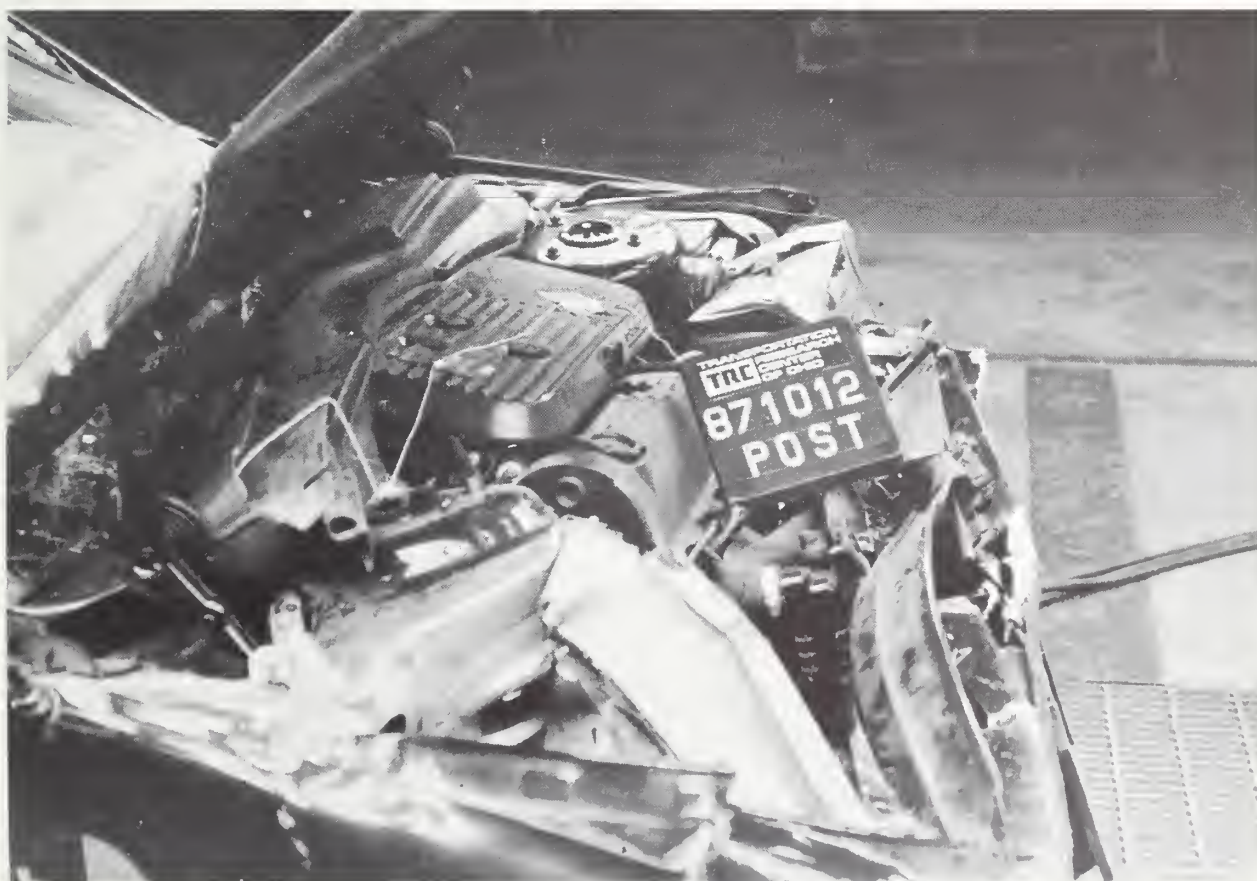


Figure 14. POST-TEST ENGINE COMPARTMENT VIEW



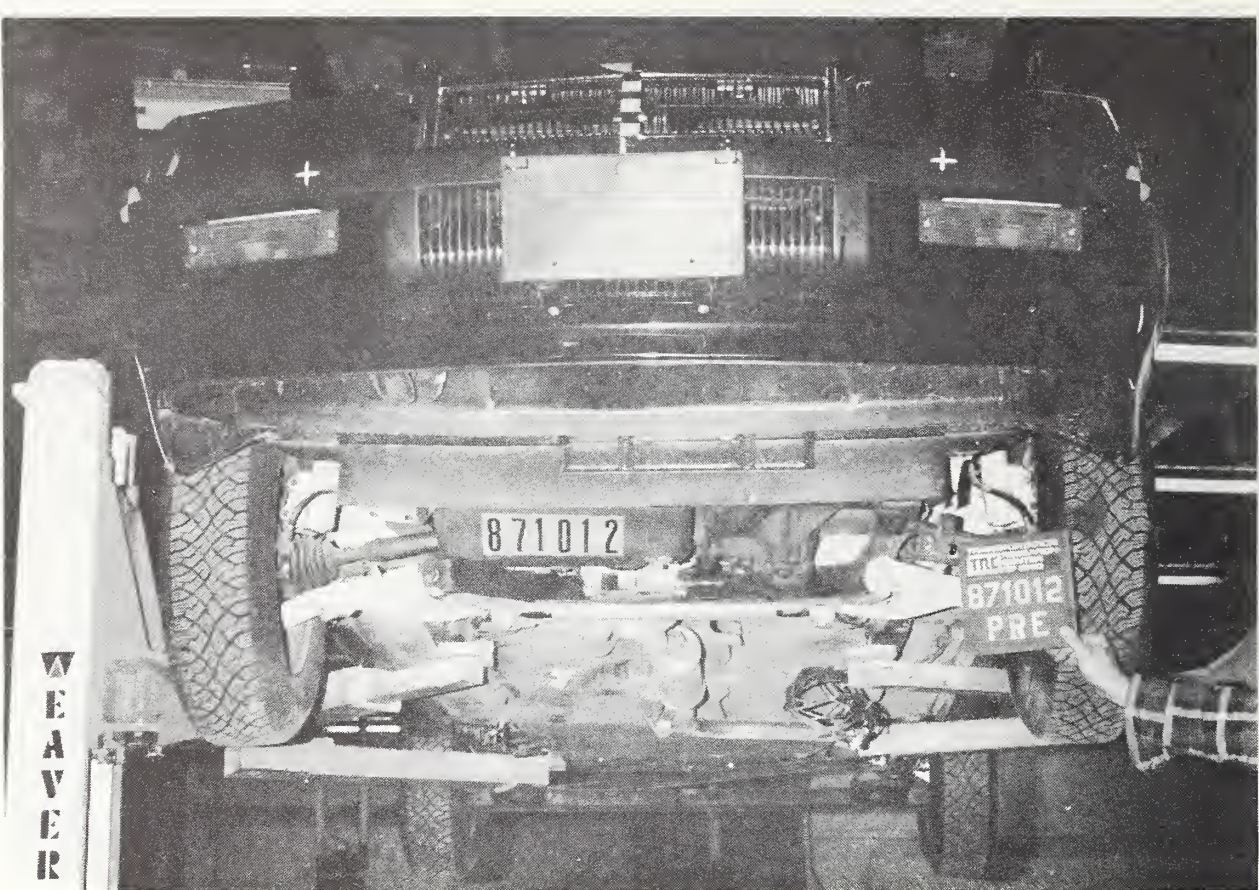


Figure 15. PRE-TEST FRONT UNDERBODY VIEW

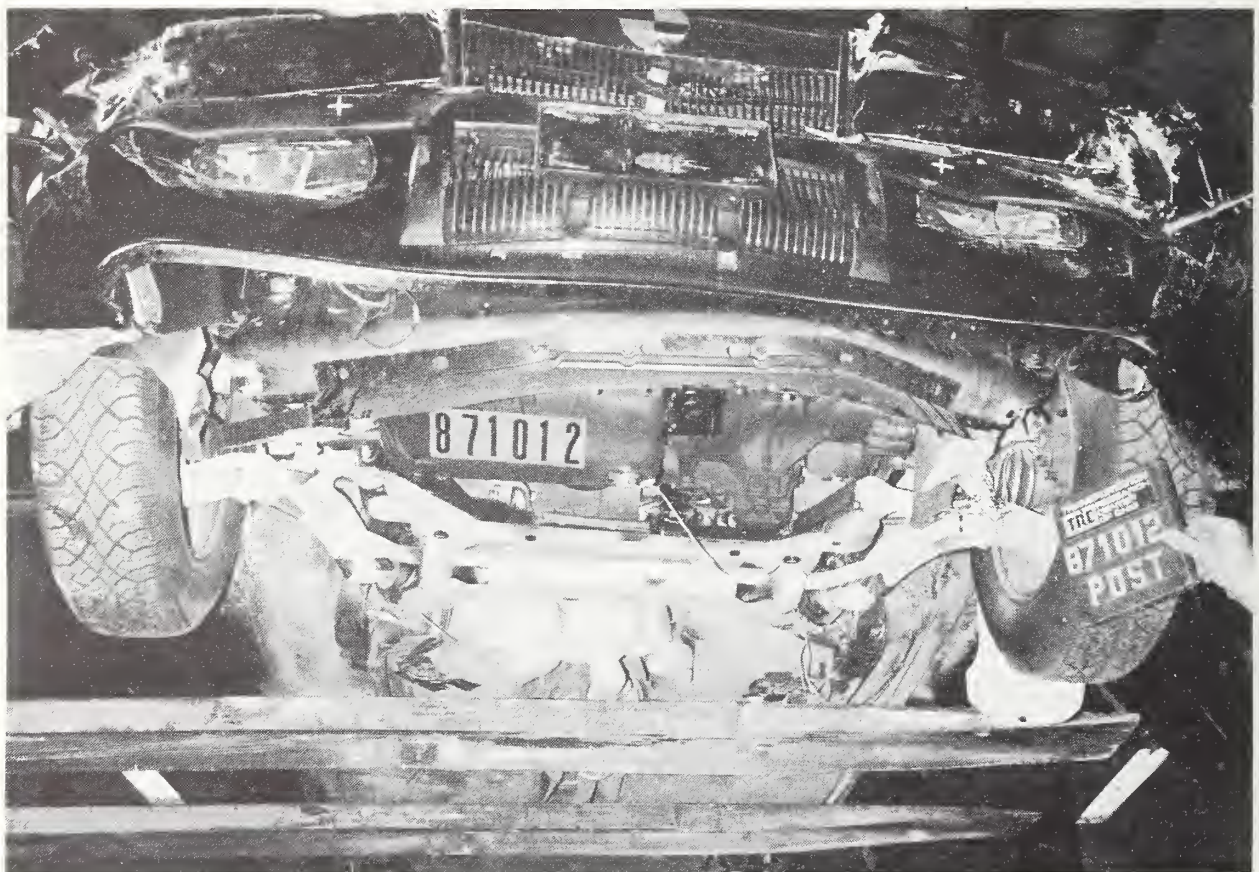


Figure 16. POST-TEST FRONT UNDERBODY VIEW  
A-10



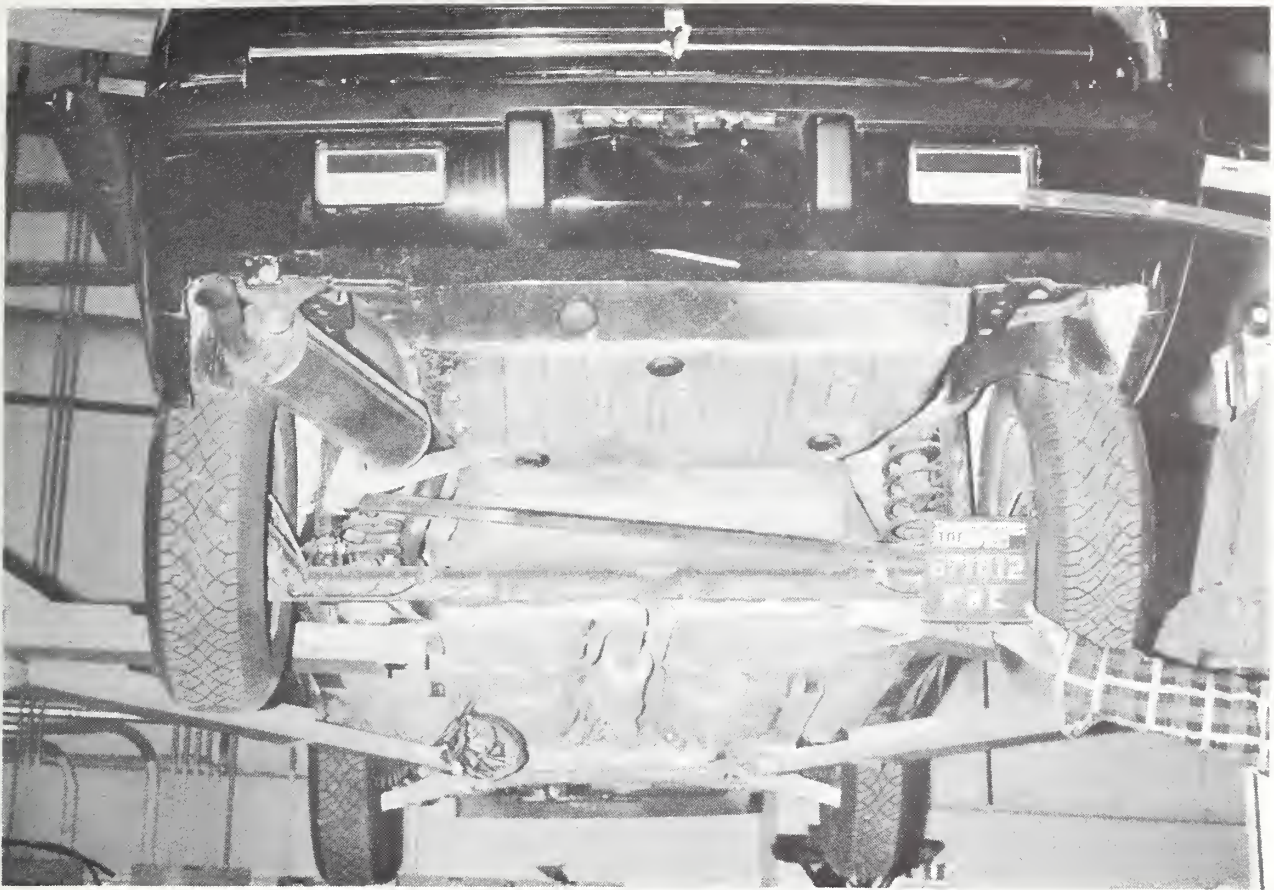


Figure 17. PRE-TEST REAR UNDERBODY VIEW

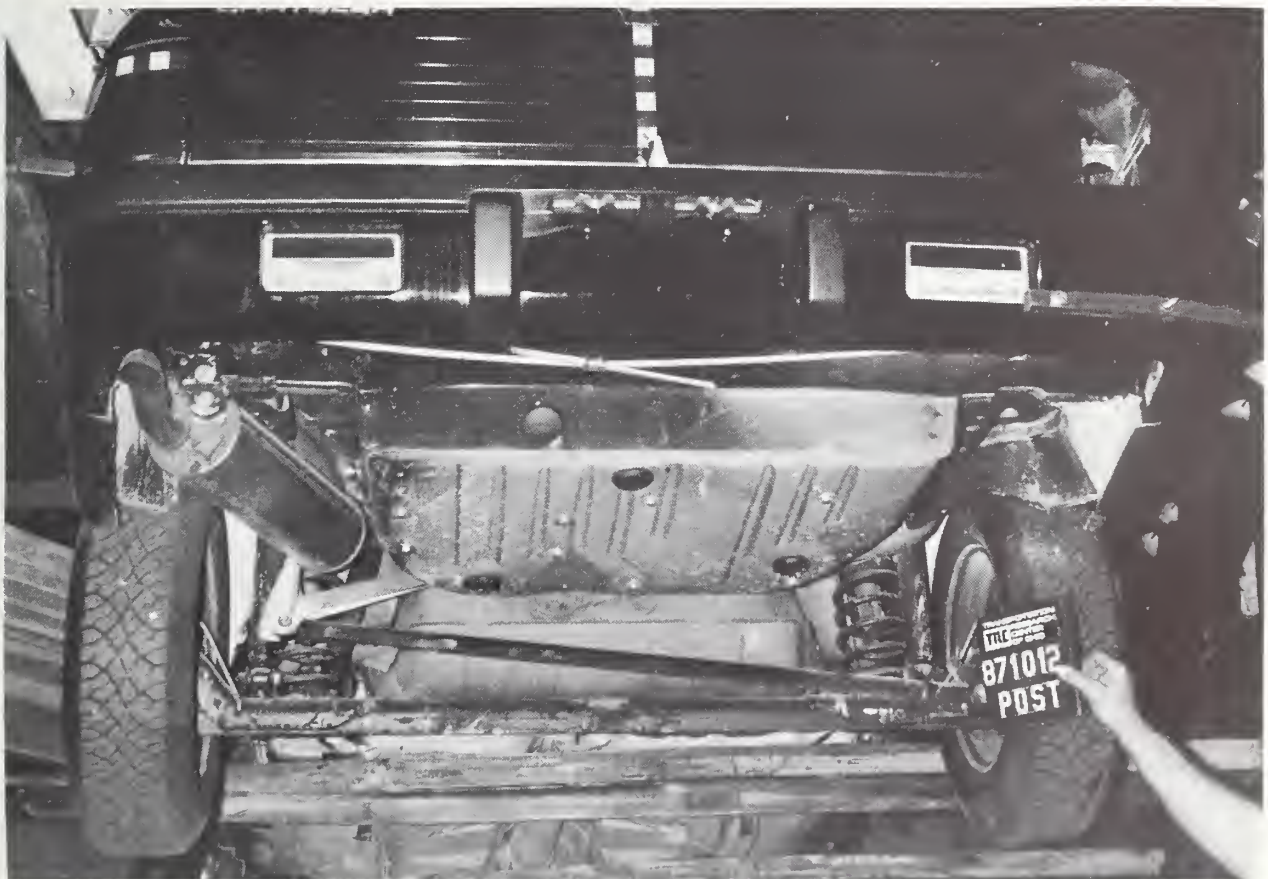


Figure 18. POST-TEST REAR UNDERBODY VIEW



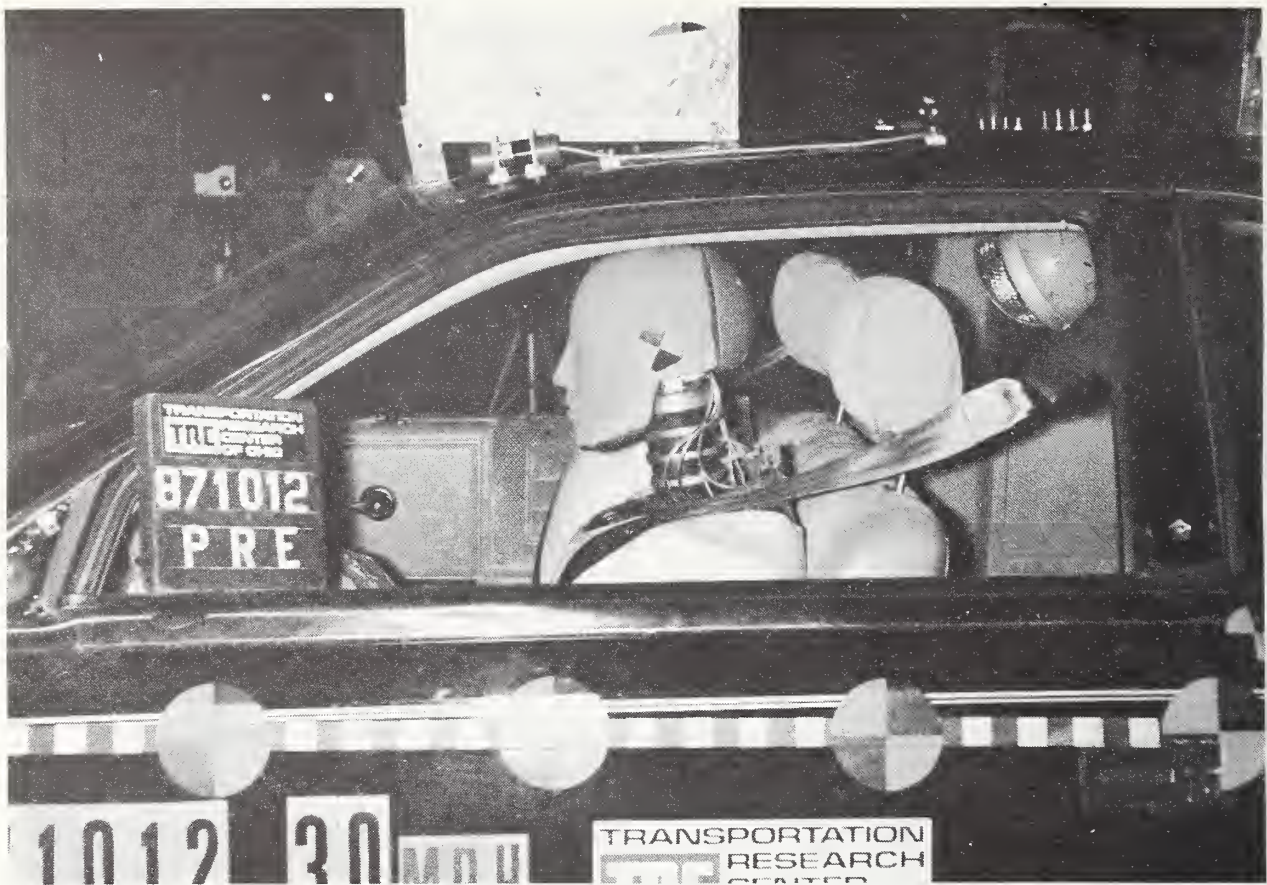


Figure 19. PRE-TEST DRIVER DUMMY POSITION VIEW



Figure 20. POST-TEST DRIVER DUMMY POSITION VIEW  
A-12





Figure 21. PRE-TEST PASSENGER DUMMY POSITION VIEW



Figure 22. POST-TEST PASSENGER DUMMY POSITION VIEW



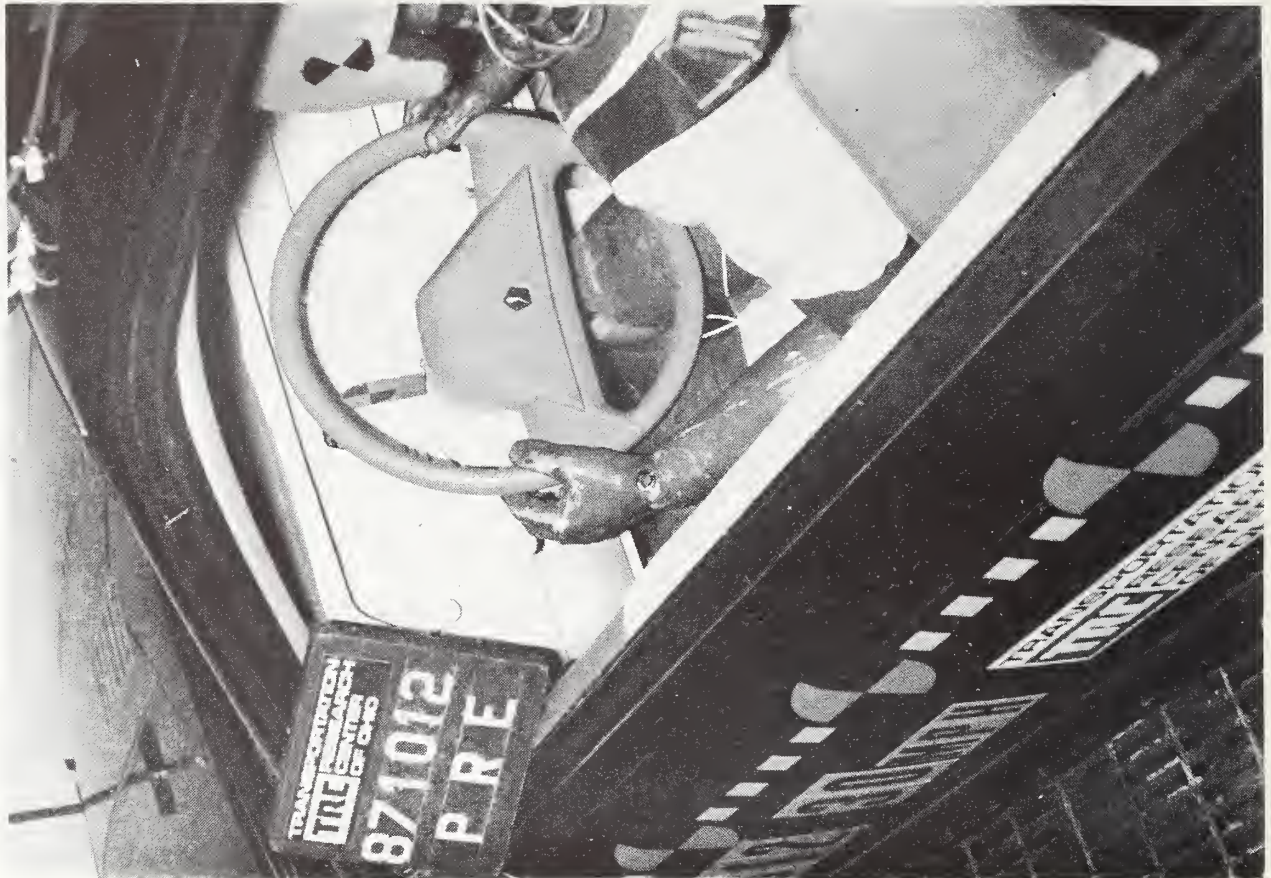


Figure 23. PRE-TEST DRIVER DUMMY & VEHICLE INTERIOR VIEW

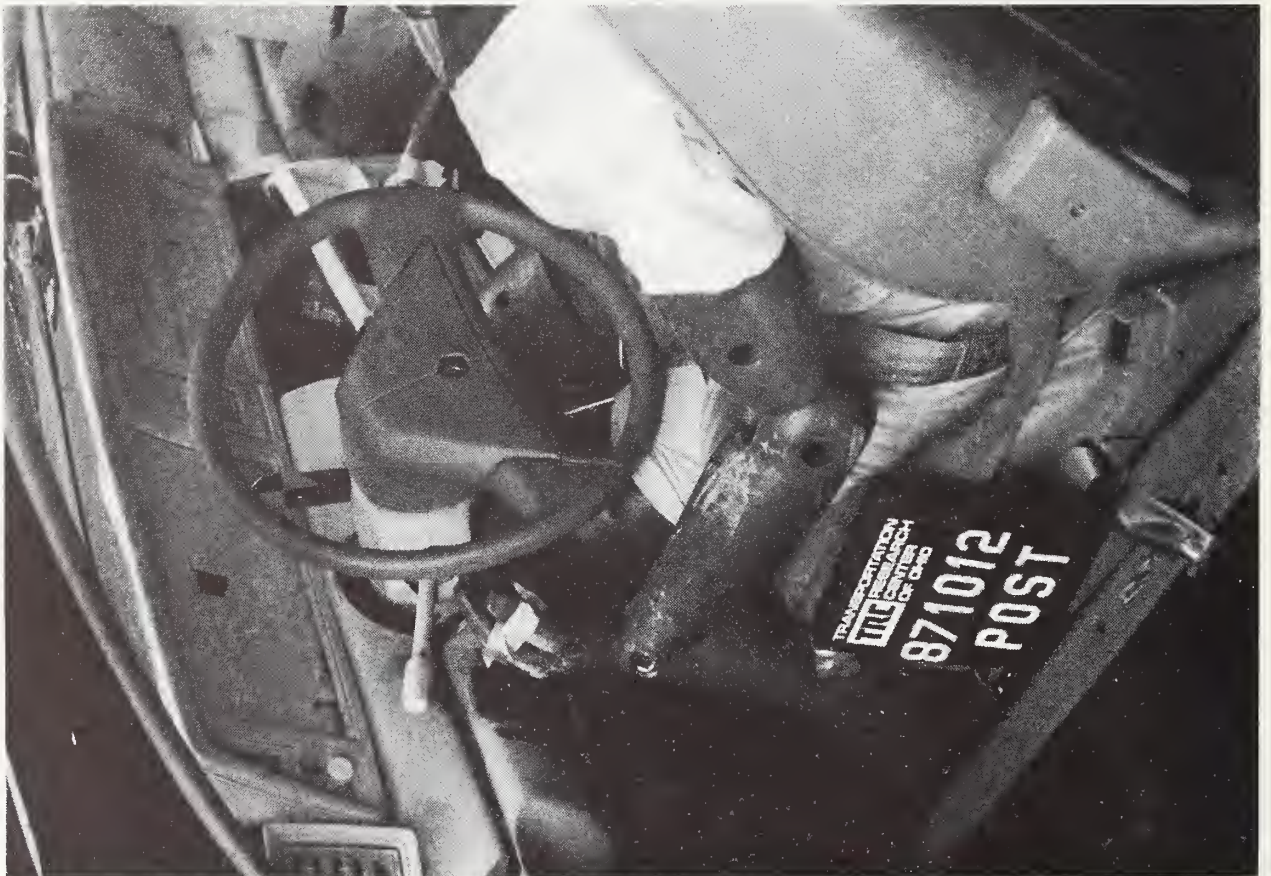


Figure 24. POST-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 1



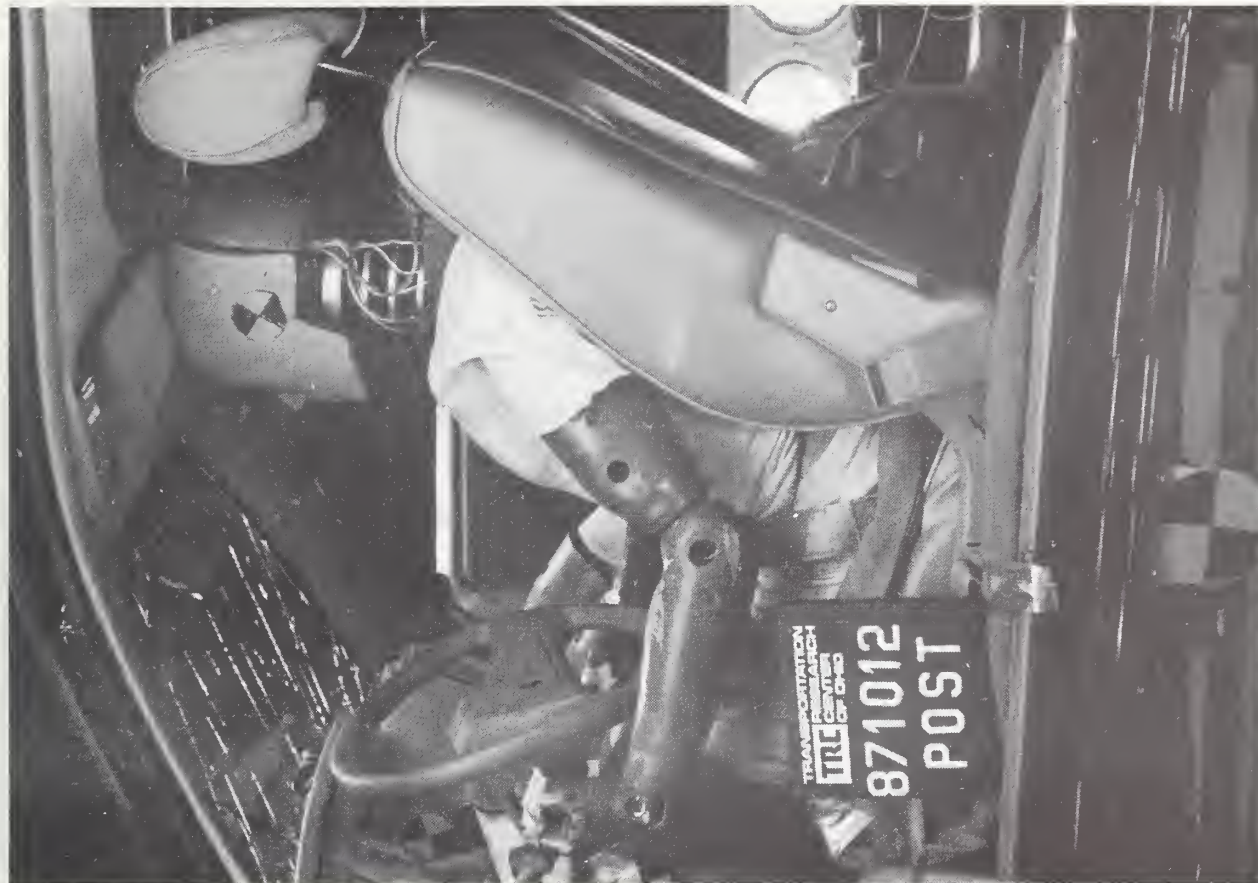


Figure 25. POST-TEST DRIVER DUMMY & VEHICLE INTERIOR - VIEW 2



Figure 26. PRE-TEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW



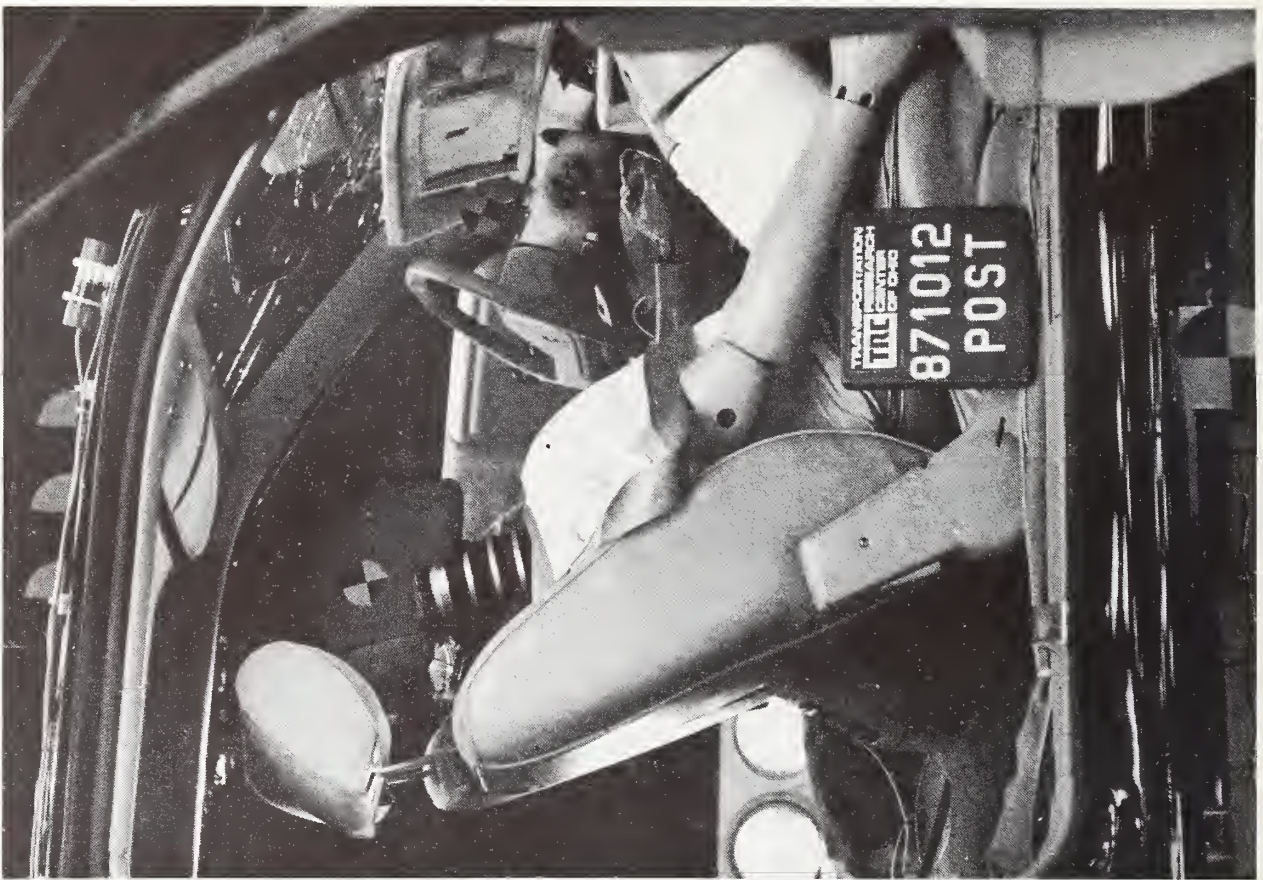


Figure 27. POST-TEST PASSENGER DUMMY & VEHICLE INTERIOR - VIEW 1



Figure 28. POST-TEST PASSENGER DUMMY & VEHICLE INTERIOUR - VIEW 2





Figure 29. POST-TEST DRIVER DUMMY HEAD/KNEE CONTACT - VIEW 1



Figure 30. POST-TEST DRIVER DUMMY HEAD/KNEE CONTACT - VIEW 2



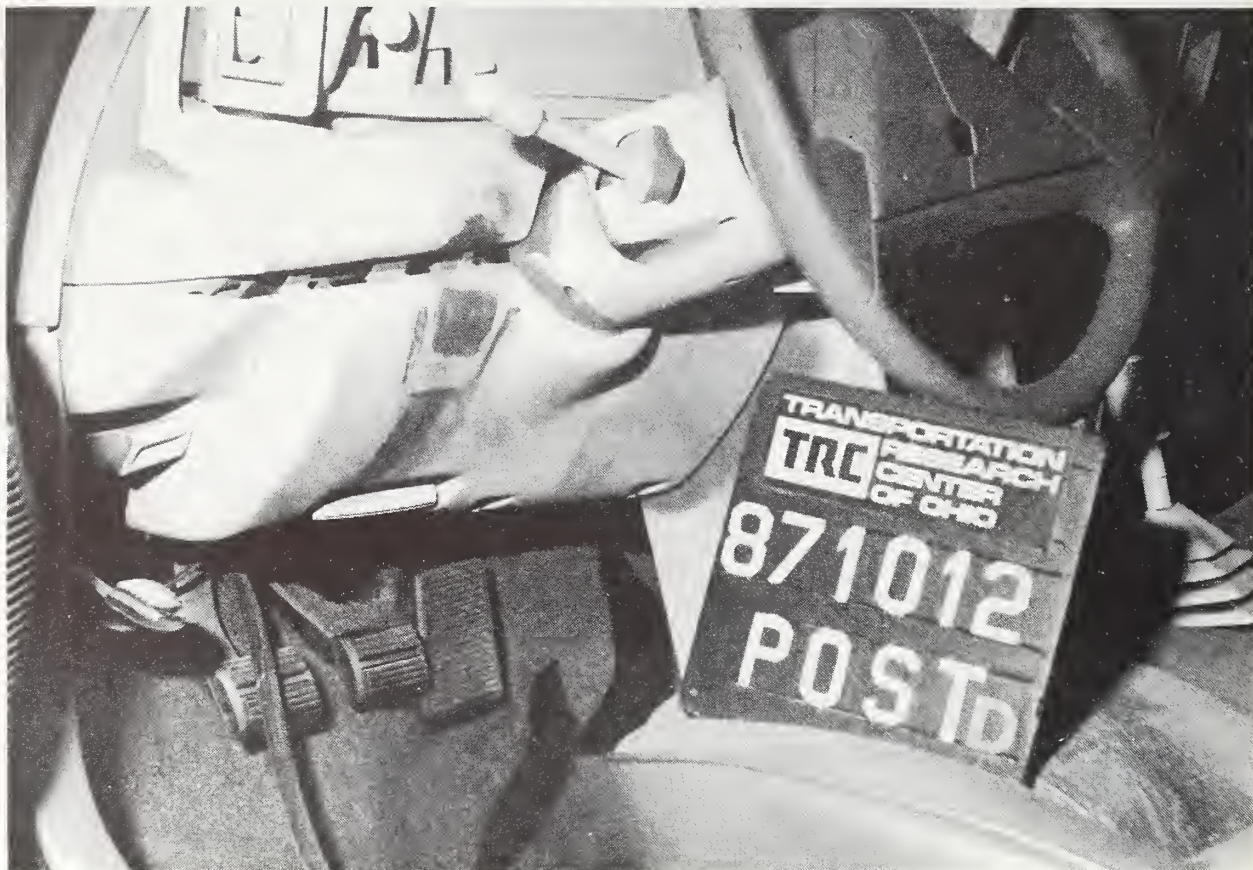


Figure 31. POST-TEST DRIVER DUMMY HEAD/KNEE CONTACT - VIEW 3



Figure 32. POST-TEST DRIVER DUMMY HEAD/KNEE CONTACT - VIEW 4





Figure 33. POST-TEST PASSENGER HEAD/KNEE CONTACT - VIEW 1



Figure 34. POST-TEST PASSENGER HEAD/KNEE CONTACT - VIEW 2



MADE IN MEXICO 4400649

<b>MANUFACTURED BY</b> <b>CHRYSLER de MEXICO</b>		<b>DATE OF</b> <b>MANUFACTURE</b>	
GVWR	GAWR FRONT	GAWR REAR	
LBS.	LBS.	LBS.	
kg	kg	kg	
THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY, BUMPER AND THEFT PREVENTION STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.			
VIN			
VEHICLE TYPE: PASSENGER CAR		MDH	

Figure 35. PRE-TEST VEHICLE CERTIFICATION LABEL VIEW


	REDUCED LOADING (IMPROVED RIDE)	VEHICLE CAPACITY OR LESS
1ST SEAT	2 PASS.	2 PASS.
2ND SEAT	2 PASS.	3 PASS.
LUGGAGE	0	115 LBS-52kg
TOTAL	4 PASS.	5 PASS.
TOTAL WEIGHT	600 LBS 272 kg	865 LBS 392 kg
TIRE PRESSURE COLD	29 <sup>PSI</sup> 200 kPa FRONT & REAR	29 <sup>PSI</sup> 200 kPa FRONT & REAR
<b>MINIMUM TIRE SIZE</b>		
<b>P185/75R14</b>		
STANDARD LOAD		
SEE OWNERS MANUAL FOR OPTIONAL TIRES, HIGH SPEED OPERATION & ADDITIONAL DATA		
PRINTED IN USA		4284558

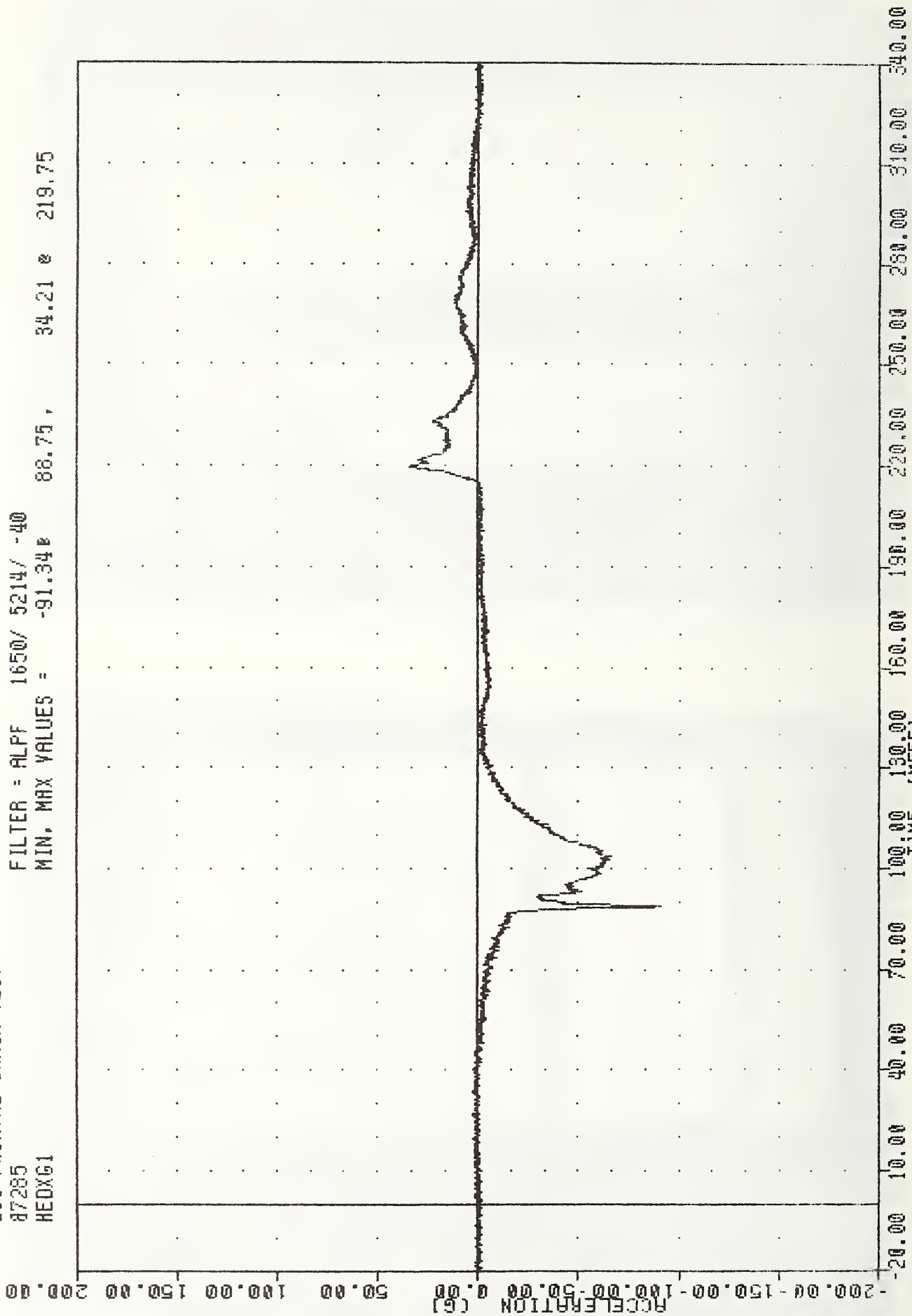
Figure 36. PRE-TEST VEHICLE TIRE LOAD LABEL VIEW

## APPENDIX B

### DATA PLOTS

TRC , 871012  
 200 FRONTAL CRASH TEST  
 87285  
 HEDXC1

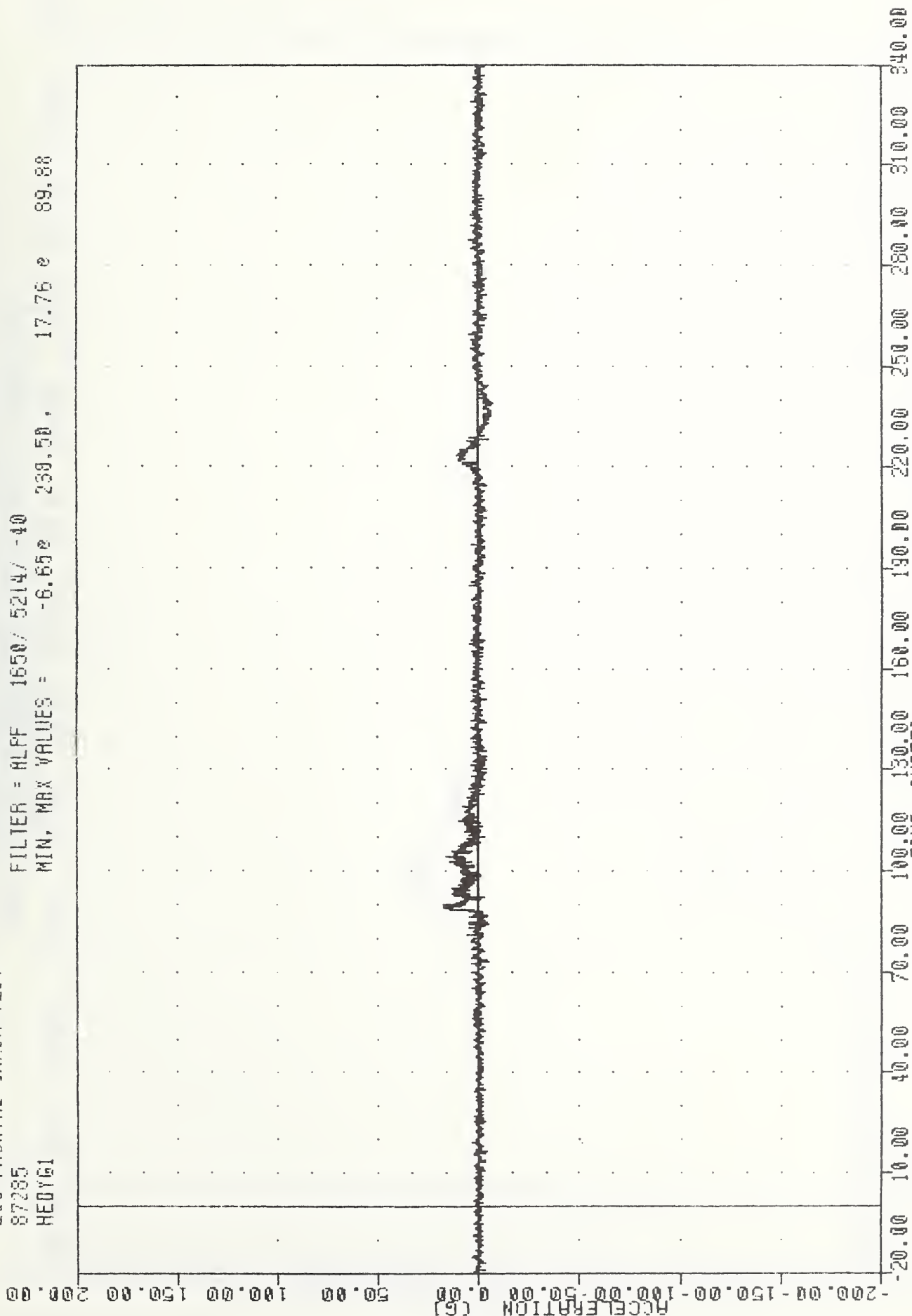
FILTER = ALPF 1650/ 5214/ -40  
 MIN. MAX VALUES = -91.34e 88.75, 34.21 e 219.75



CHRYSLER LEBARON INTO FRONTAL BARRIER  
 DRIVER HEAD X AXIS ACCELERATION

TRC 271012  
 206 FRONTAL CRASH TEST  
 87285  
 HEDY61

FILTER = ALPF 1650/ 5214/ -40  
 MIN, MAX VALUES = -6.65e 239.50, 17.76 e 89.88

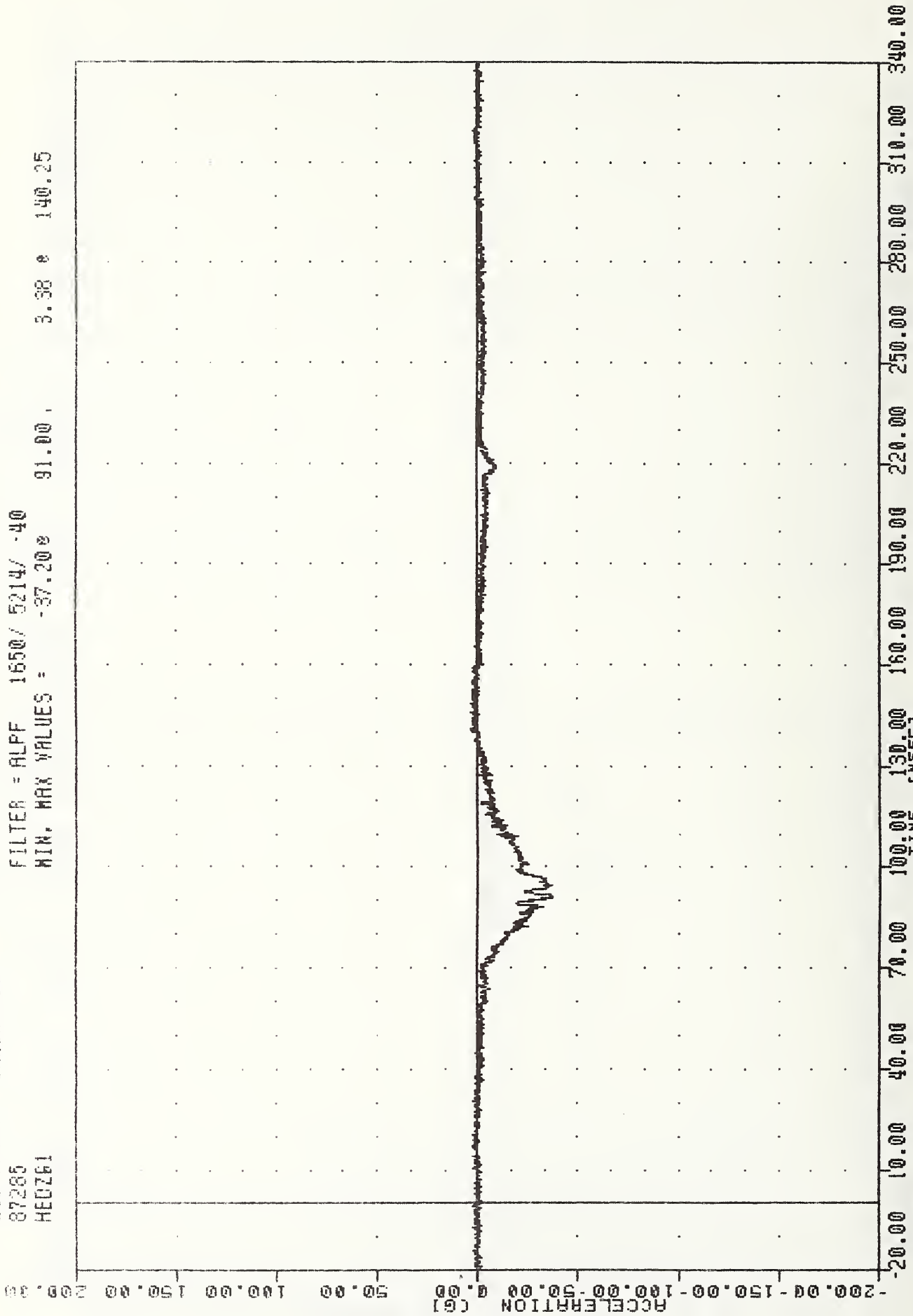


CHRYSLER LEBARON INTO FRONTAL BARRIER  
 DRIVER HEAD Y AXIS ACCELERATION



TAC , 871012  
 200 FRONTAL CRASH TEST  
 87265  
 HEDZB1

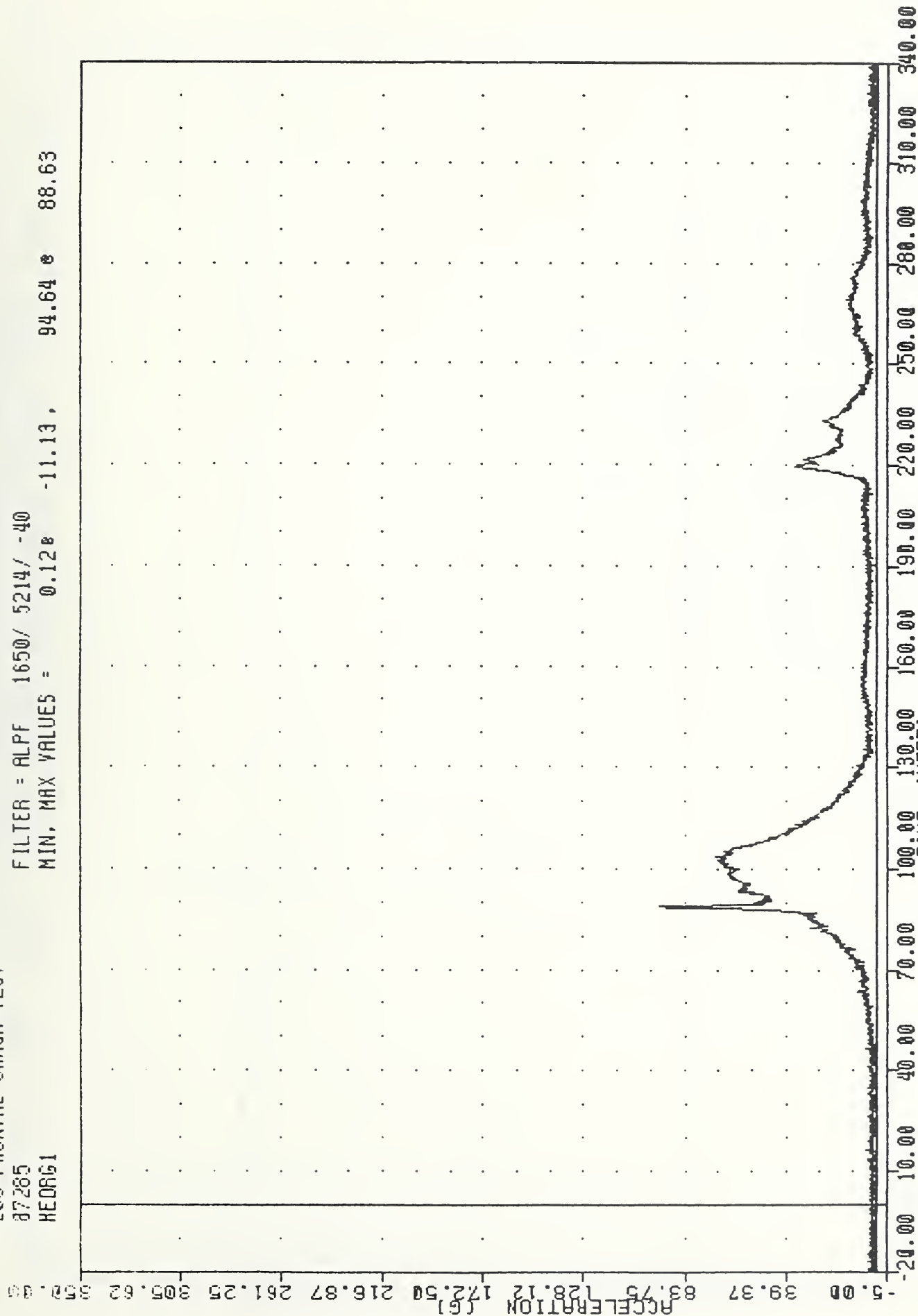
FILTER = ALPF 1650/ 5214/ -40  
 MIN, MAX VALUES = -37.200 91.00 , 3.38 140.25



CHRYSLER LEBARON INTO FRONTAL BARRIER  
 DRIVER HEAD Z AXIS ACCELERATION

TSC , 871012  
 208 FRONTAL CRASH TEST  
 87285  
 HEDRG1

FILTER = ALPF 1650/ 5214/ -40  
 MIN. MAX VALUES = 0.128 -11.13, 94.64 88.63

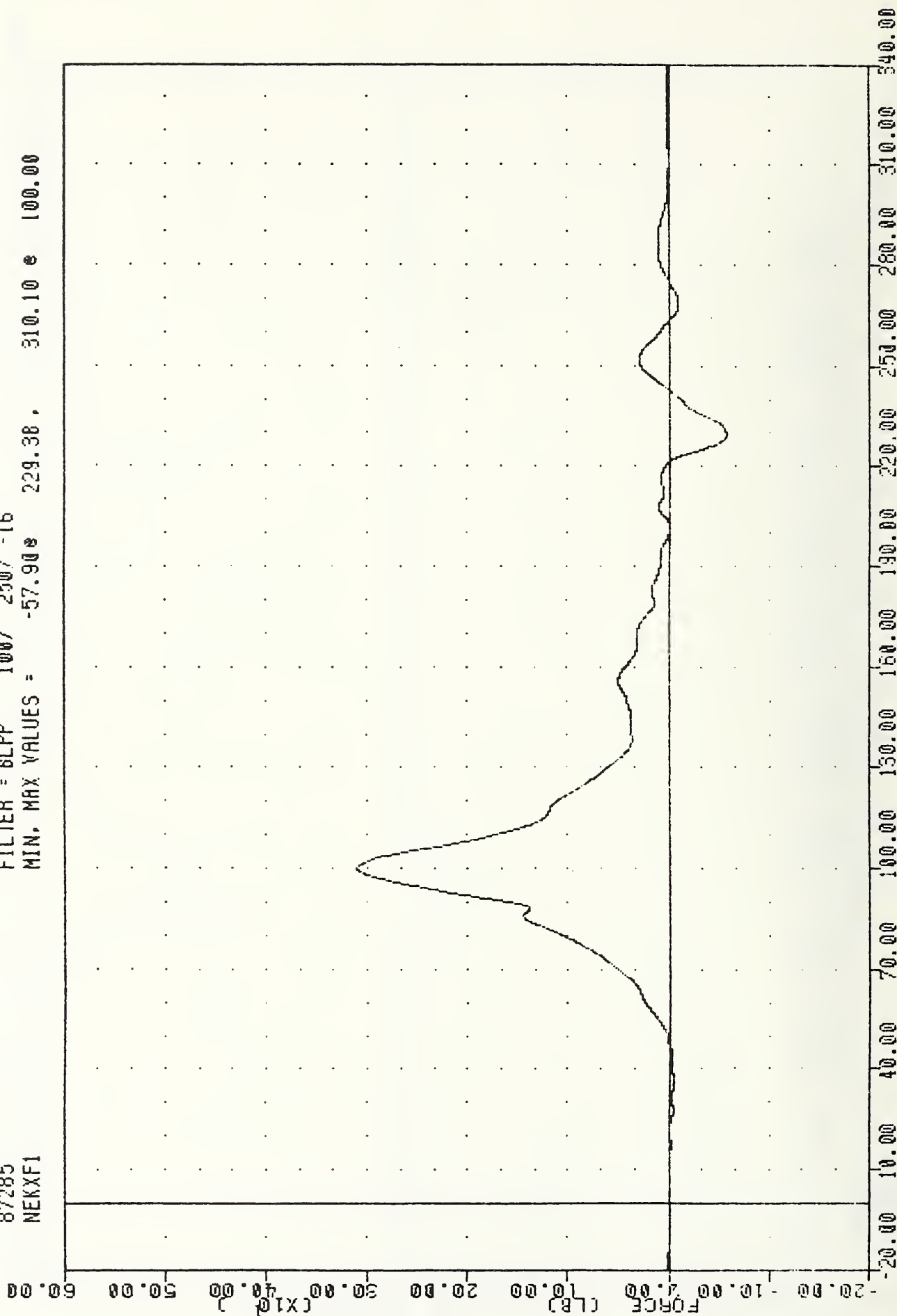


CHRYSLER LEBARON INTO FRONTAL BARRIER  
 DRIVER HEAD RESULTANT ACCELERATION



TRC , 871012  
 208 FRONTAL CRASH TEST  
 87285  
 NEKXF1

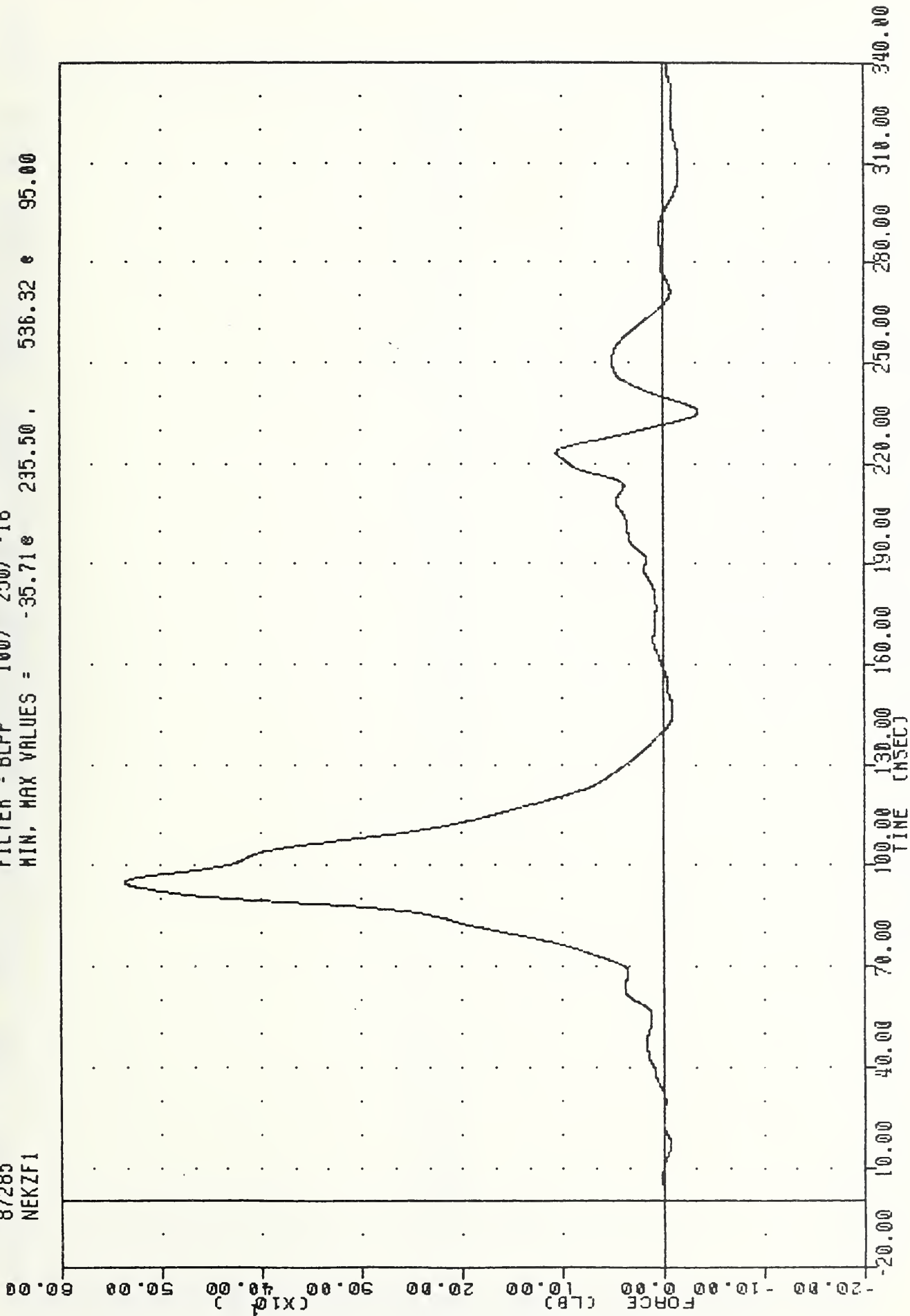
FILTER = 6LPP 100/ 250/ -16  
 MIN, MAX VALUES = -57.90 229.38, 310.10 100.00



CHRYSLER LEBARON INTO FRONTAL BARRIER  
 DRIVER NECK FORCE X AXIS LBS (SHEAR)

TAC 871012  
 200 FRJNTAL CARSH TEST  
 87285  
 NEKZF1

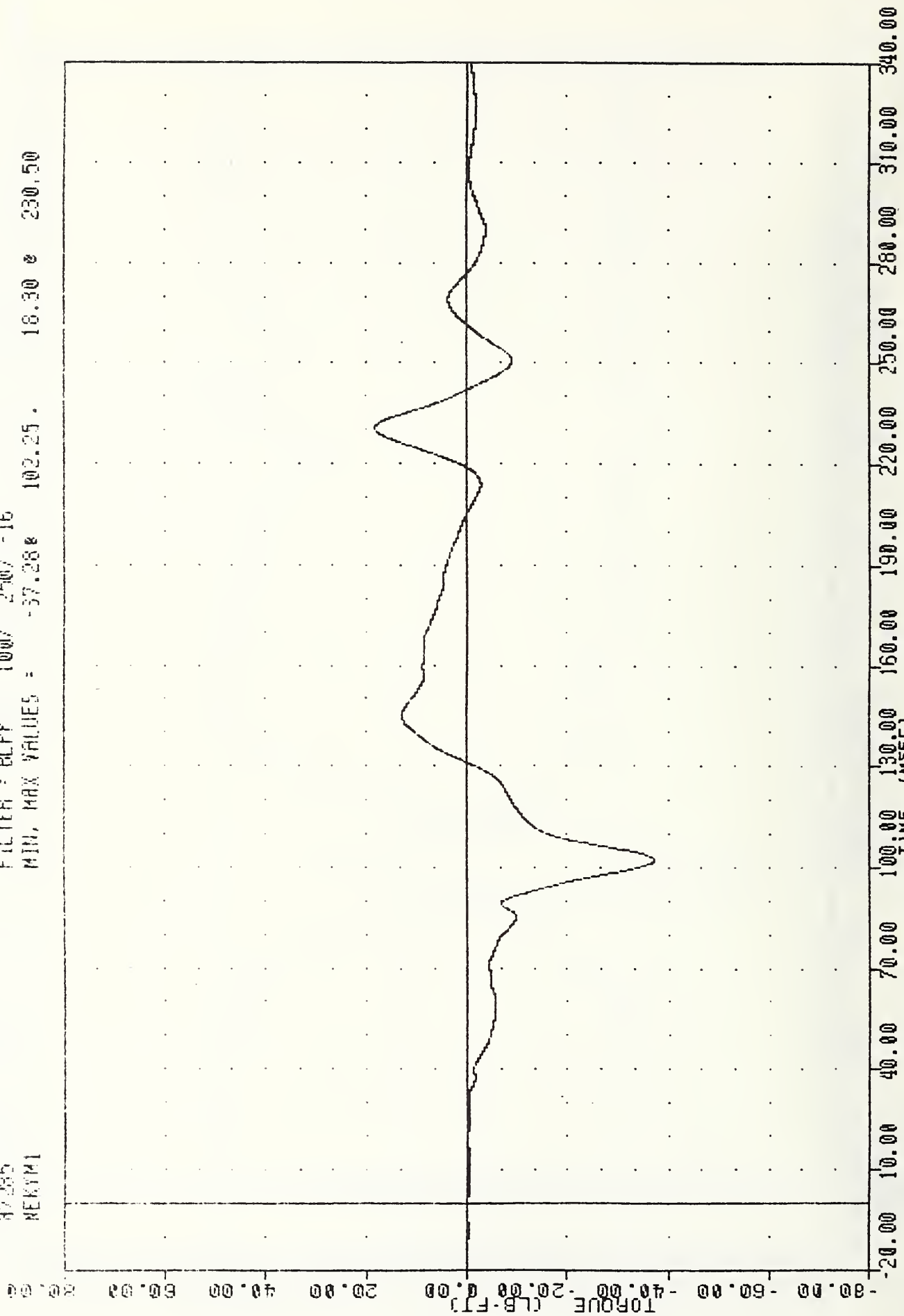
FILTER = BLPP 100/ 250/ -16  
 MIN, MAX VALUES = -35.71e 235.50 , 536.32 e 95.00



CHRYSLER LEBARON INTO FRONTAL BARRIER  
 DRIVER NECK FORCE Z AXIS LBS (AXIAL)

872055  
 206 FRONTAL CRASH TEST  
 872055  
 NECTM1

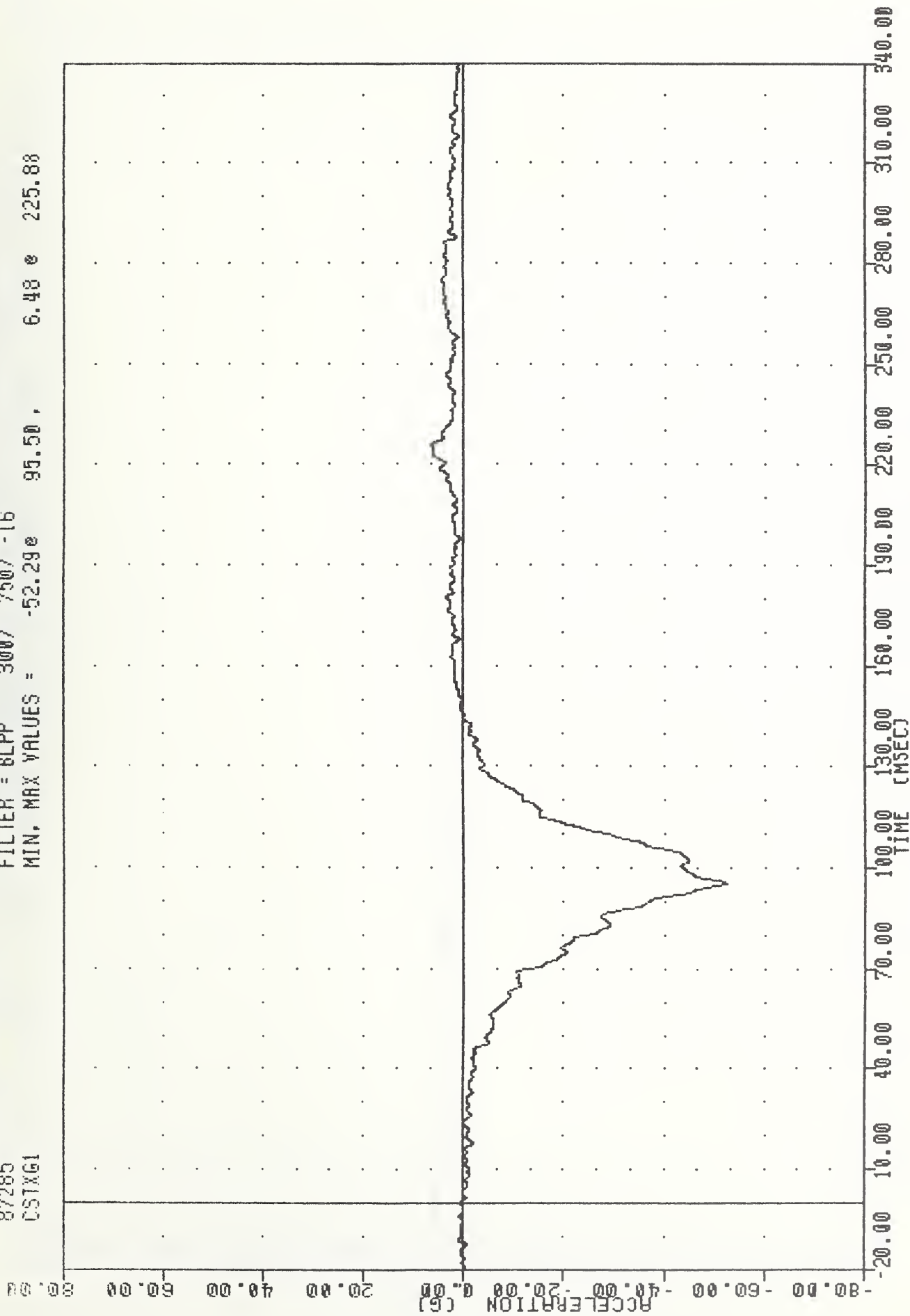
FILTER = BLPP 100/ 250/ -16  
 MIN, MAX VALUES = -37.28 102.25 18.30 230.50



CHRYSLER LEBARON INTO FRONTAL BARRIER  
 DRIVER NECK MOMENT Y AXIS FT-LBS

TRC , 871012  
200 FRONTAL CRASH TEST  
87285  
CSTXG1

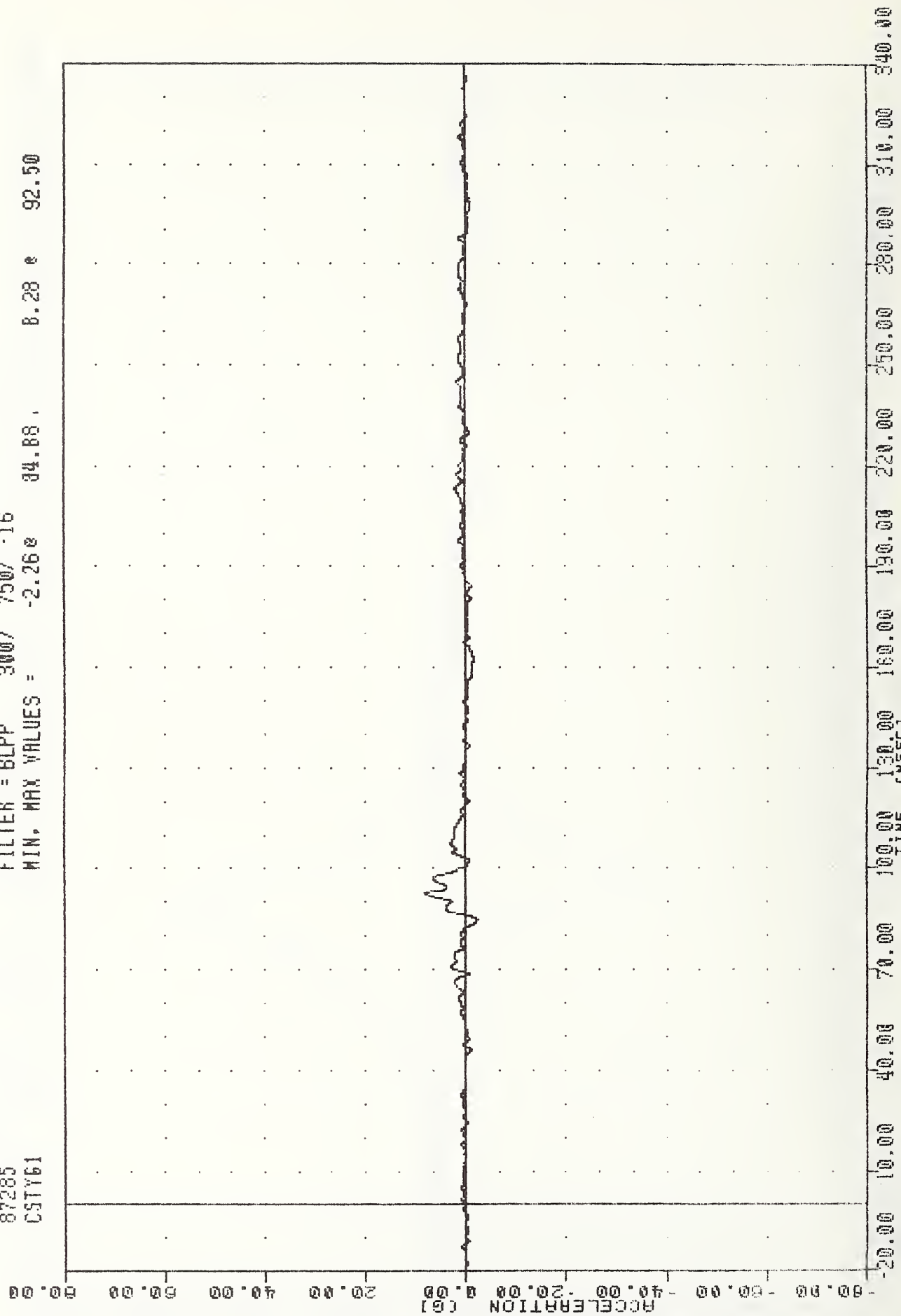
FILTER = BLPP 300/ 750/ -16  
MIN. MAX VALUES = -52.290 95.50 , 6.48 0 225.88



CHRYSLER LEBARON INTO FRONTAL BARRIER  
DRIVER CHEST X AXIS ACCELERATION

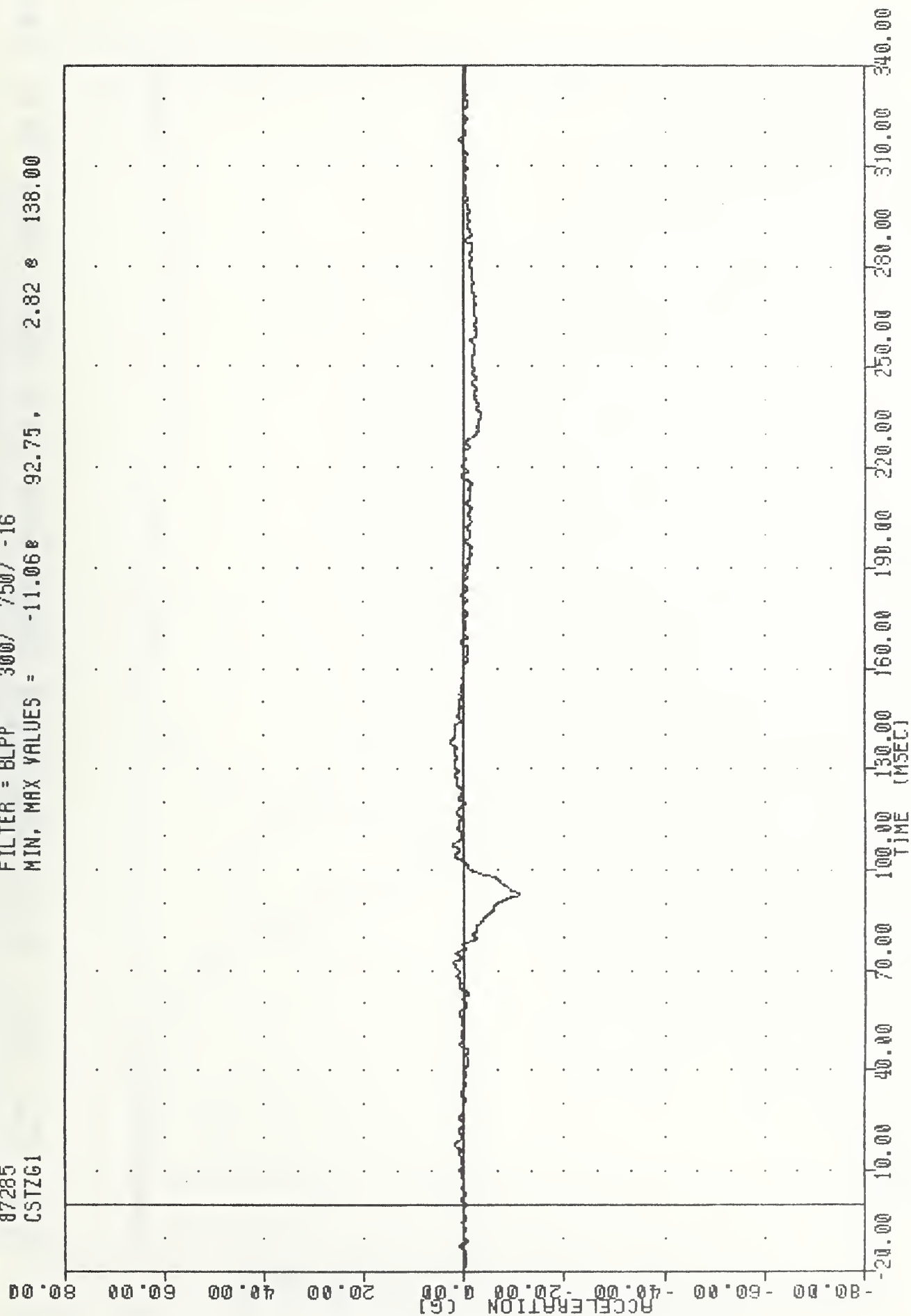
TAC , 871012  
 208 FRONTAL CRASH TEST  
 87285  
 CSTY61

FILTER = BLPP 300/ 750/ -16  
 MIN, MAX VALUES = -2.26e 84.88 , 8.28 e 92.50



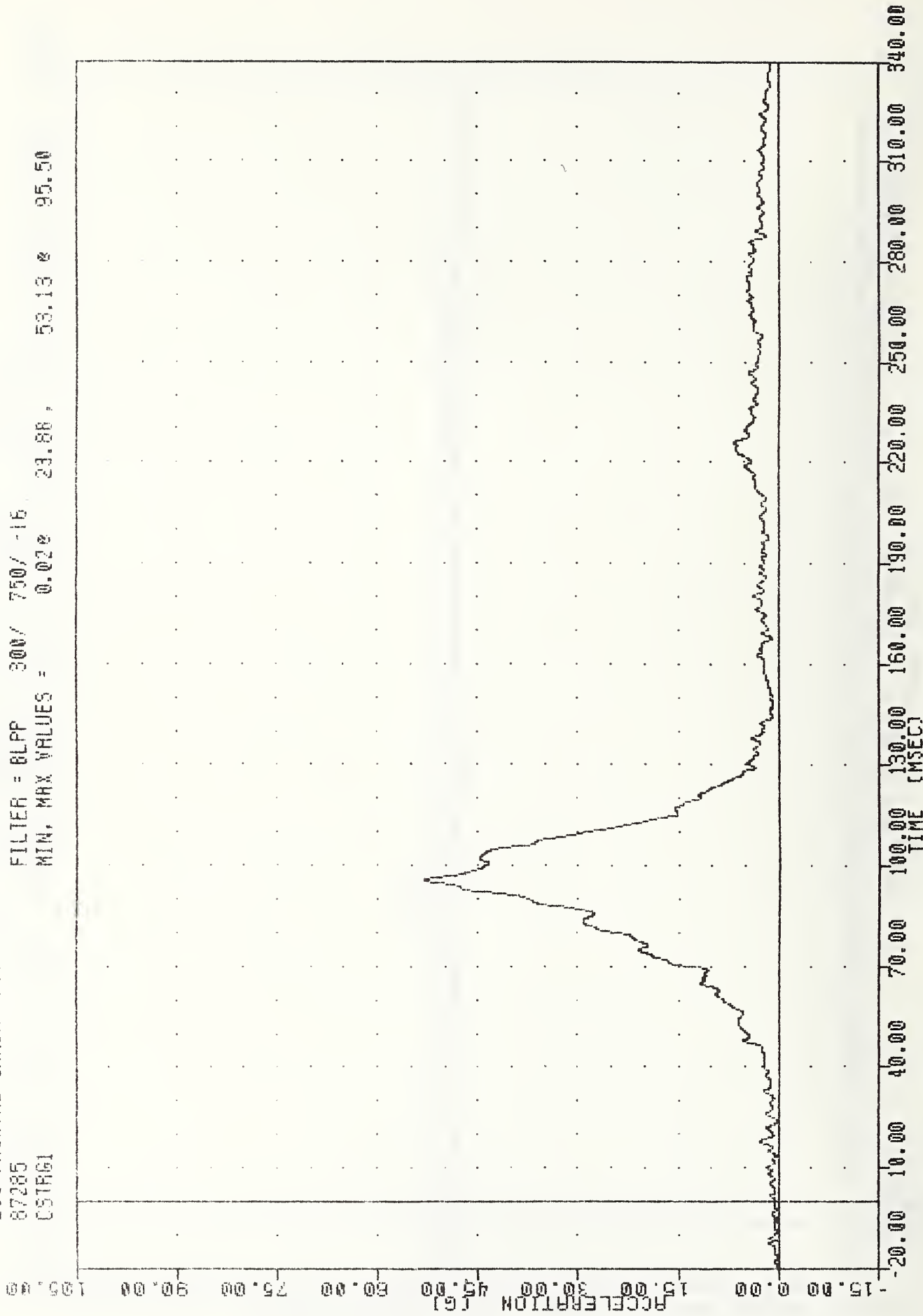
TRC , 871012  
 200 FRONTAL CRASH TEST  
 87285  
 CSTZG1

FILTER = BLPP 300/ 750/ -16  
 MIN, MAX VALUES = -11.06e 92.75, 2.82 e 138.00



7500 , 871012  
 208 FRONTAL CRASH TEST  
 87285  
 CSTRG1

FILTER = 8LPP 300/ 750/ -16  
 MIN. MAX VALUES = 0.028 23.88 , 53.13 \* 95.50

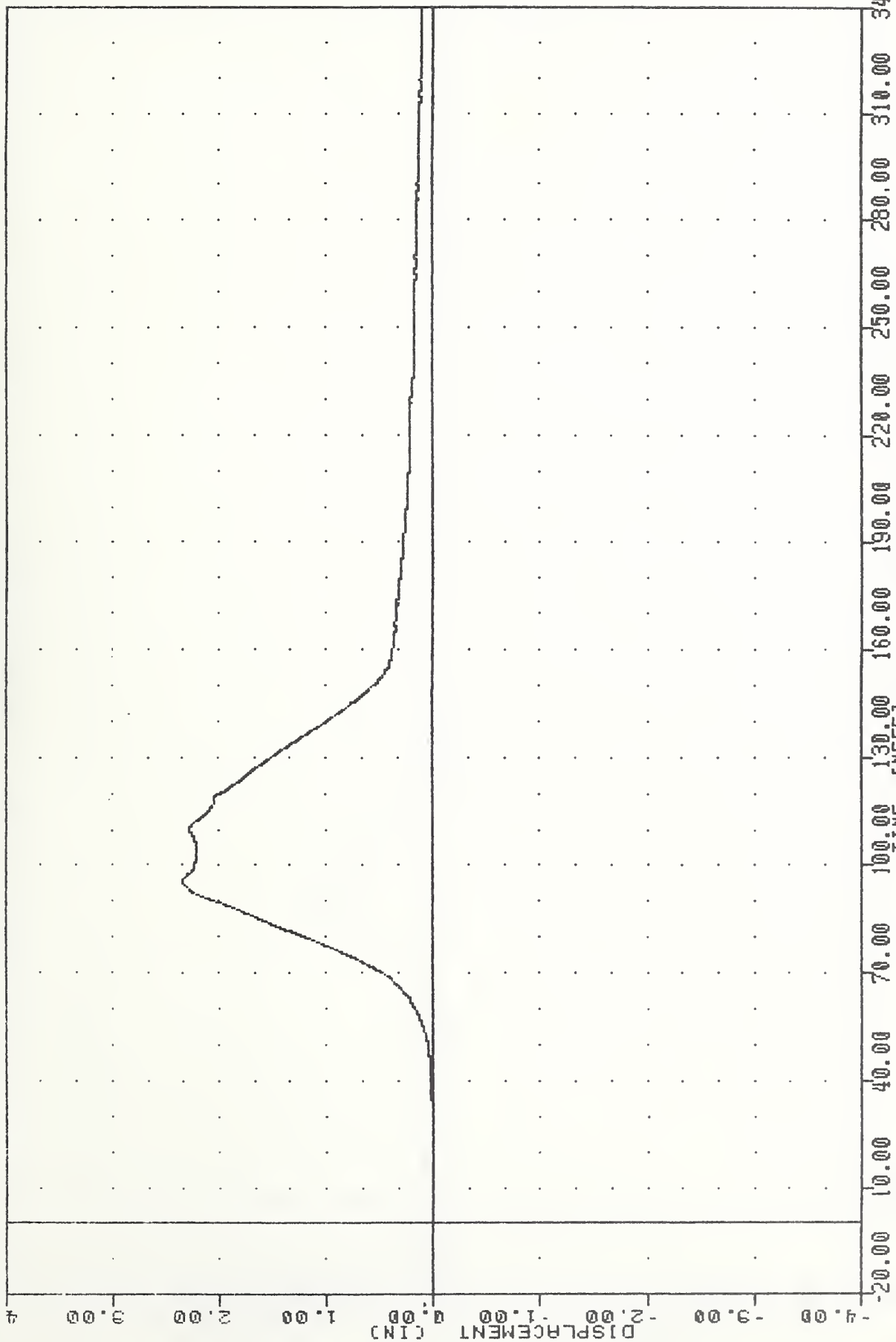




TAC , 871012  
 208 FRONTAL CRASH TEST  
 87285  
 CSTX01

FILTER = BLPP 300/ 750/ -16  
 MIN. MAX VALUES = -0.01e 18.75 , 2.35 e 95.38

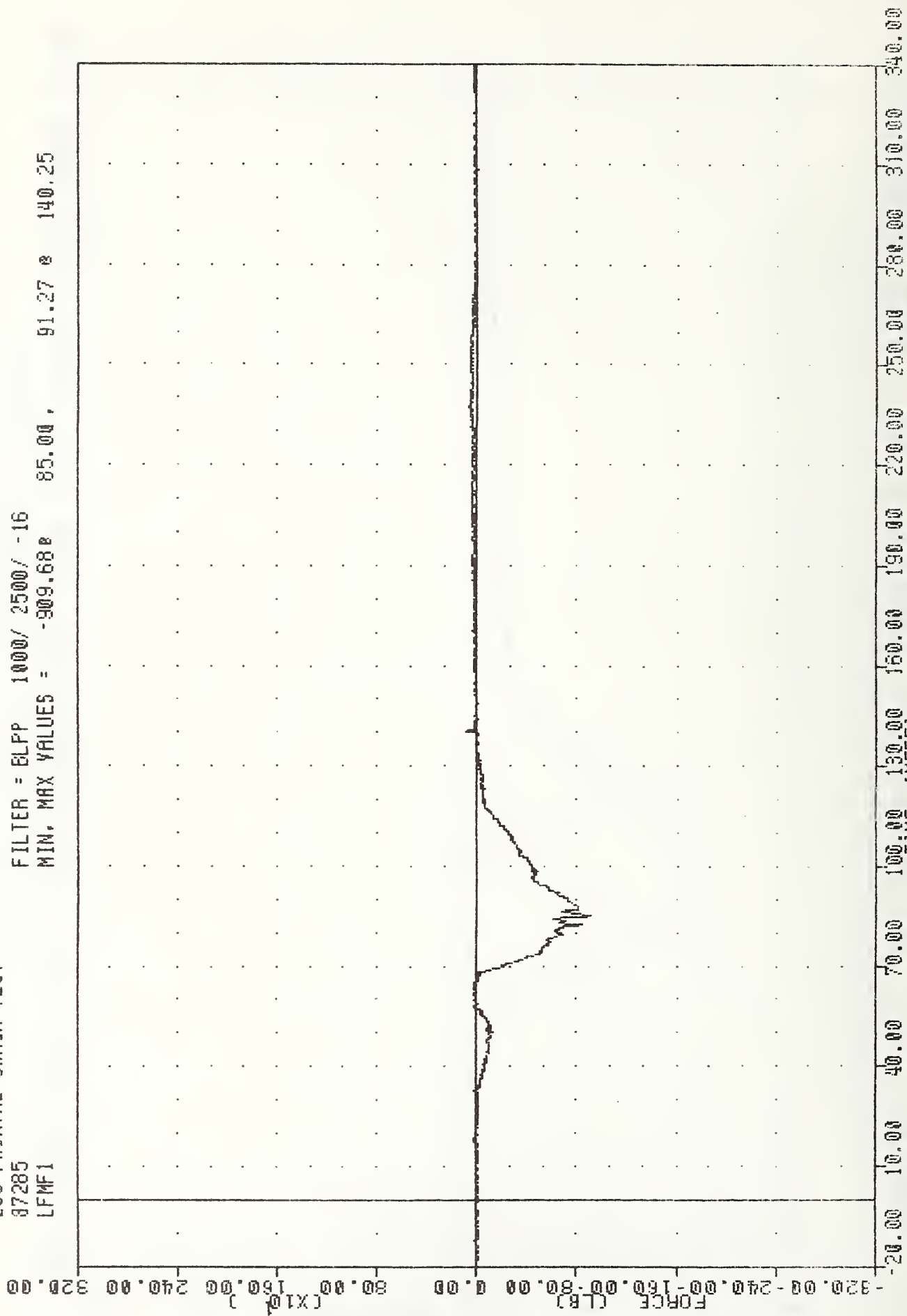
4.76



CHRYSLER LEBARON INTO FRONTAL BARRIER  
 DRIVER CHEST DISPLACEMENT INCHES

TRC , 871012  
 200 FRONTAL CRASH TEST  
 87285  
 LFMF1

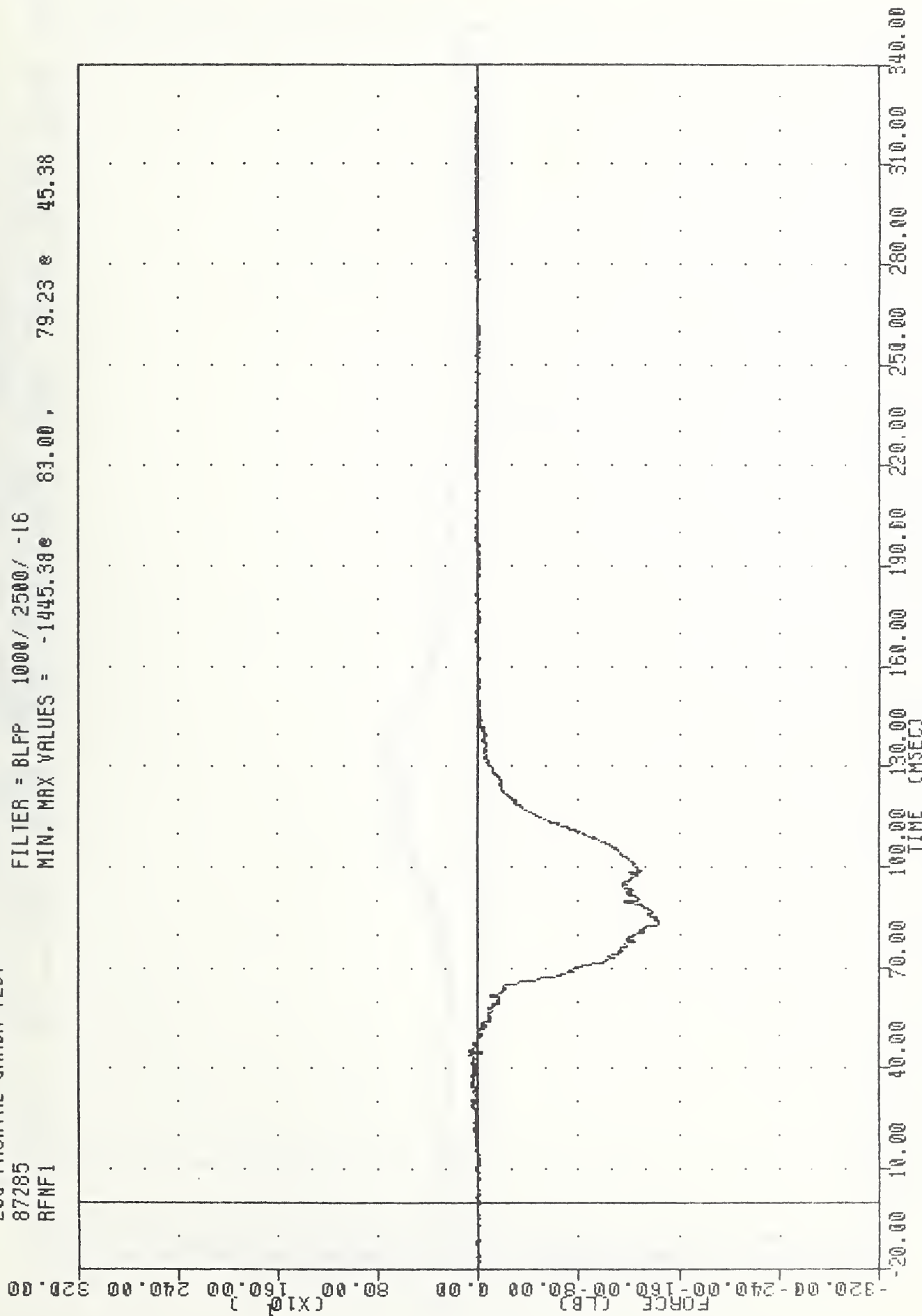
FILTER = BLPP 1000/ 2500/ -16  
 MIN, MAX VALUES = -909.688 85.00, 91.27 & 140.25



CHRYSLER LEBARON INTO FRONTAL BARRIER  
 DRIVER LEFT FEMUR FORCE LBS

TRC , 871012  
 200 FRONTAL CRASH TEST  
 87285  
 RFNF1

FILTER = BLPP 1000/ 2500/ -16  
 MIN. MAX VALUES = -1445.38 83.00 , 79.23 45.38

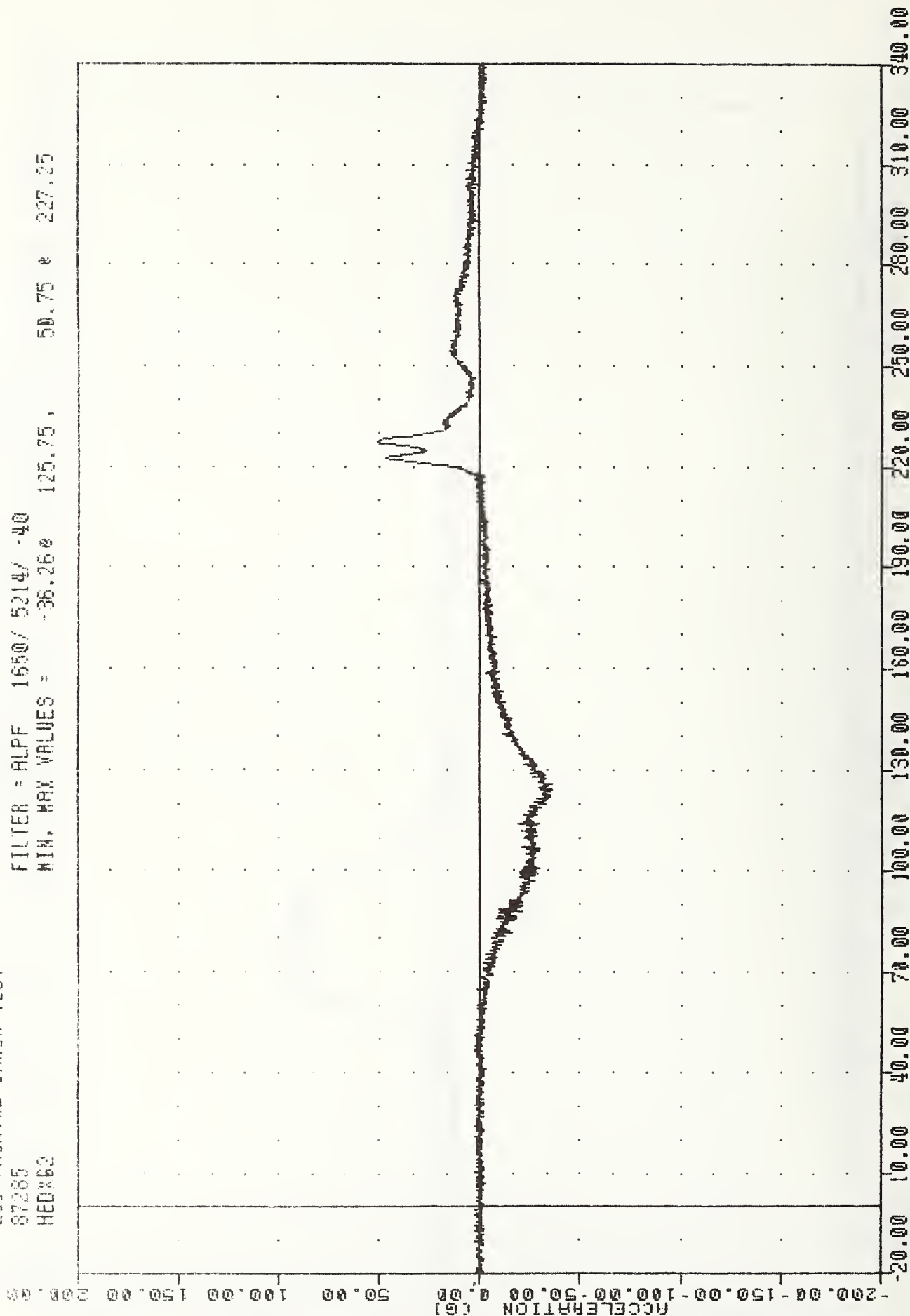


CHRYSLER LEBARON INTO FRONTAL BARRIER  
 DRIVER RIGHT FEMUR FORCE LBS

TAC  
 200 FRONTAL CRASH TEST  
 87265  
 HEDX62

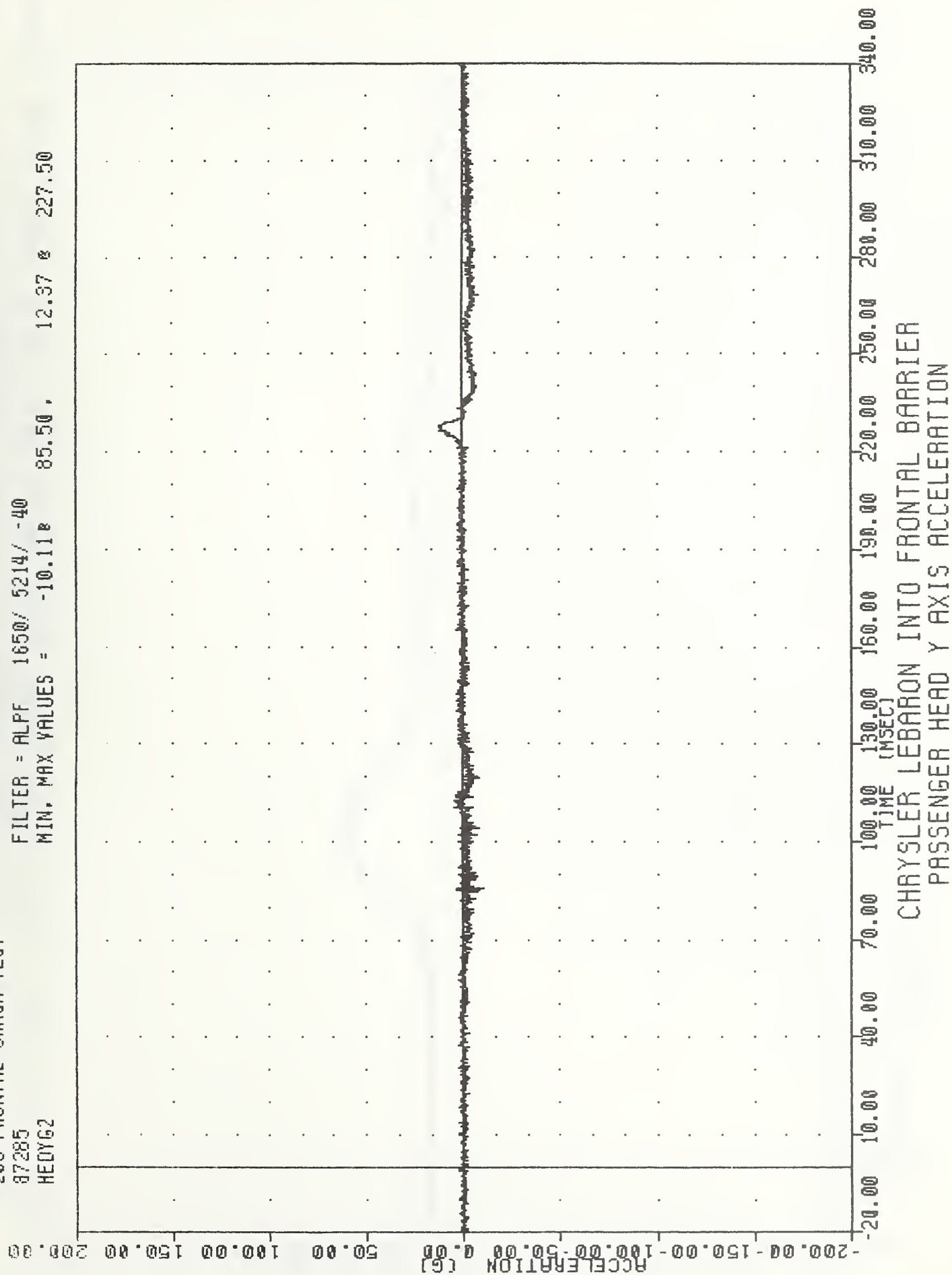
, 871012

FILTER = ALPF 1650/ 5214/ -40  
 MIN. MAX VALUES = -36.260 125.75 , 50.75 & 227.25



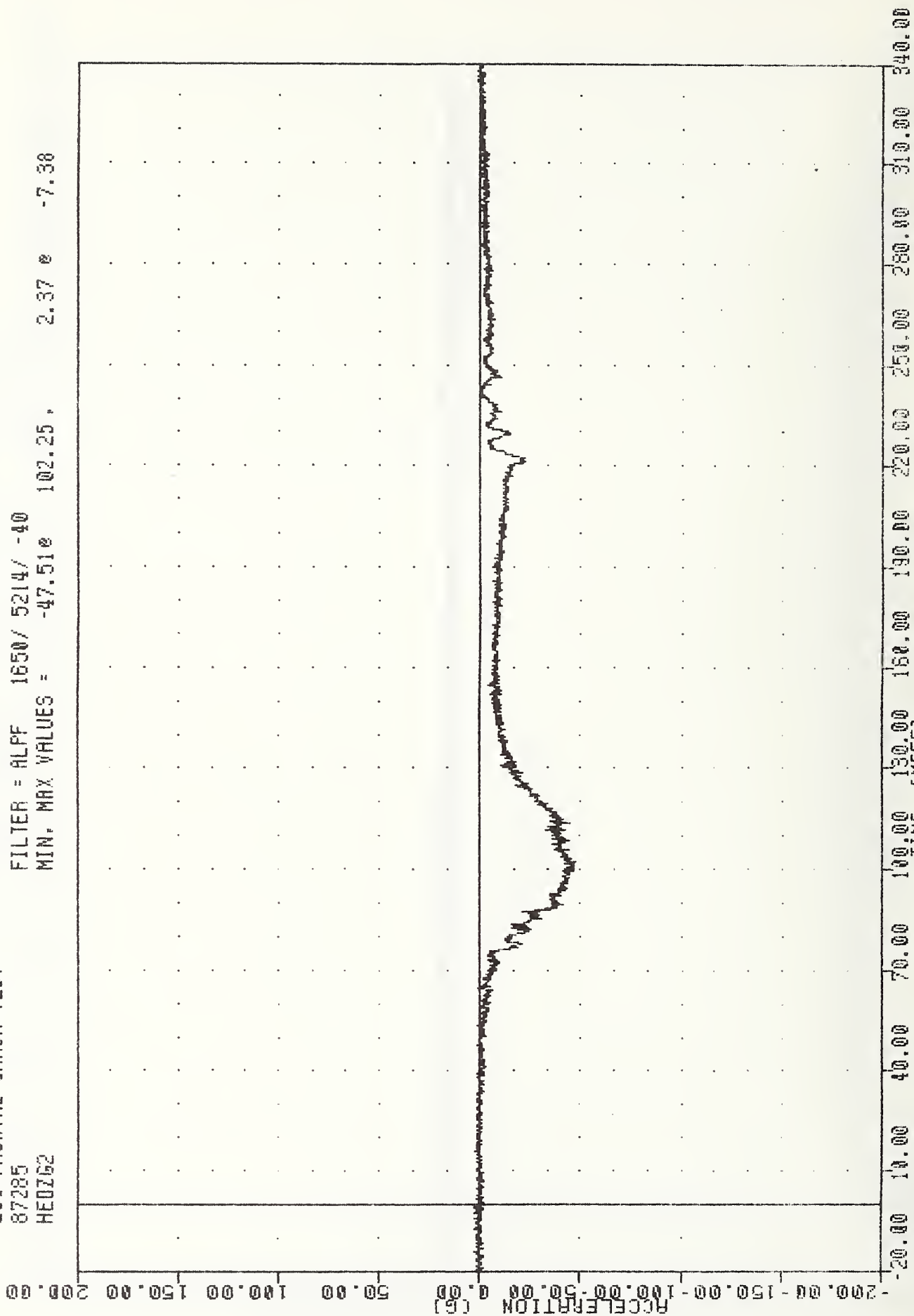
TRC , 871012  
 200 FRONTAL CRASH TEST  
 87285  
 HEDYG2

FILTER = ALPF 1650/ 5214/ -40  
 MIN. MAX VALUES = -10.11 85.50 , 12.97 227.50



TRC , 871012  
 200 FRONTAL CRASH TEST  
 87285  
 HEADZ62

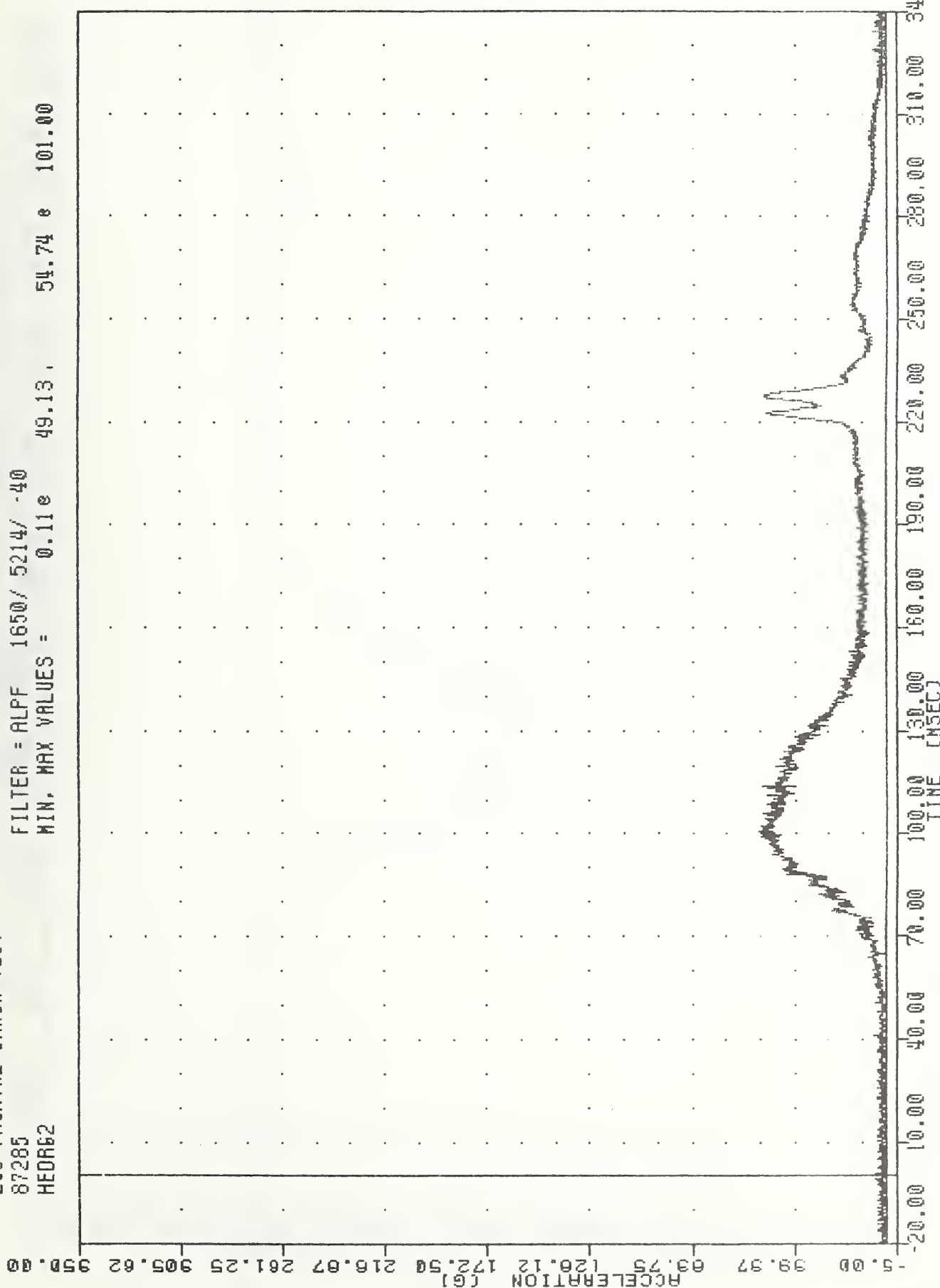
FILTER = ALPF 1650/ 5214/ -40  
 MIN. MAX VALUES = -47.51e 102.25 , 2.37 e -7.38



CHRYSLER LEBARON INTO FRONTAL BARRIER  
 PASSENGER HEAD Z AXIS ACCELERATION

TRC , 871012  
 200 FRONTAL CRASH TEST  
 87285  
 HEDR62

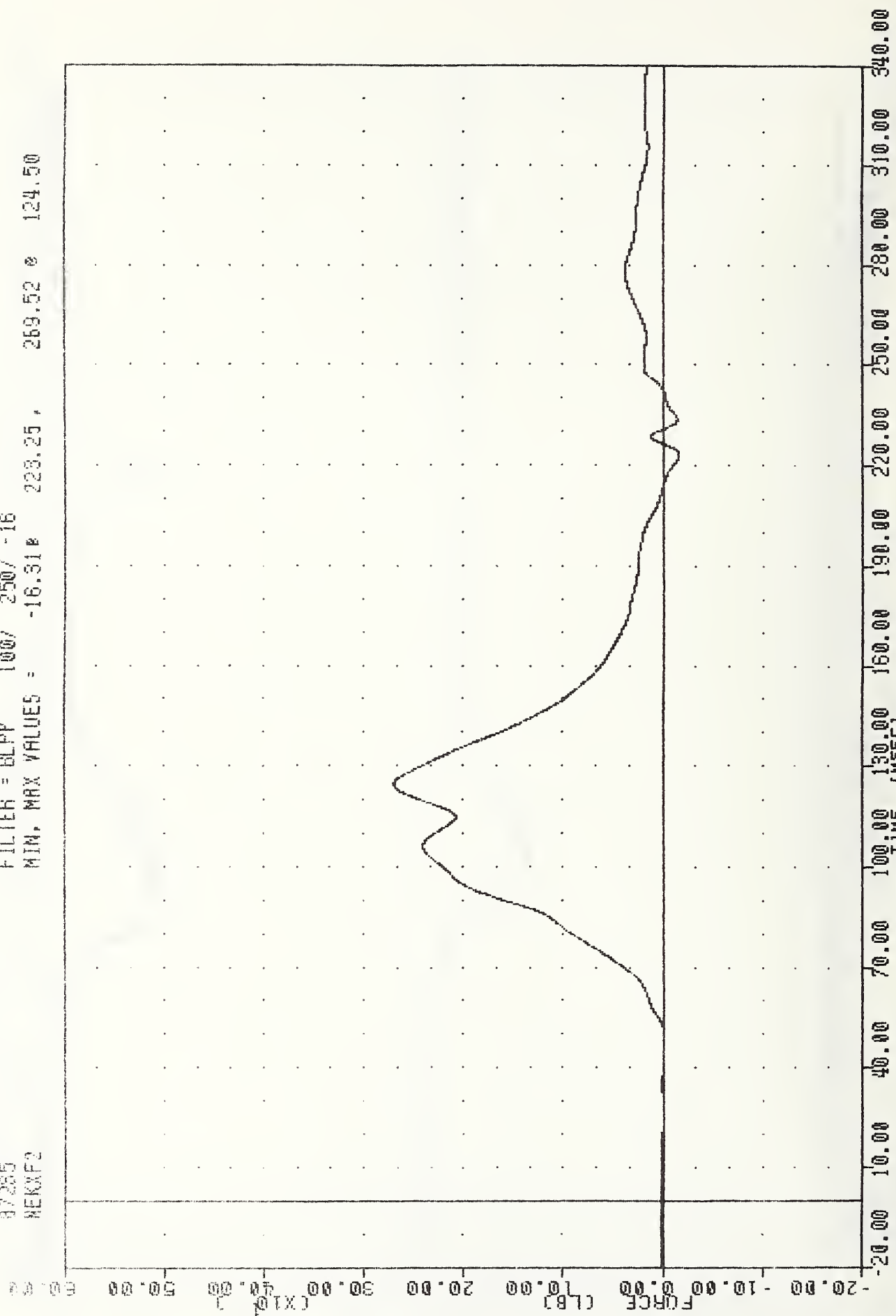
FILTER = ALPF 1650/ 5214/ -40  
 MIN, MAX VALUES = 0.11e 49.13, 54.74 e 101.00





TAC , 821012  
 208 FRONTAL CRASH TEST  
 87285  
 REKXF2

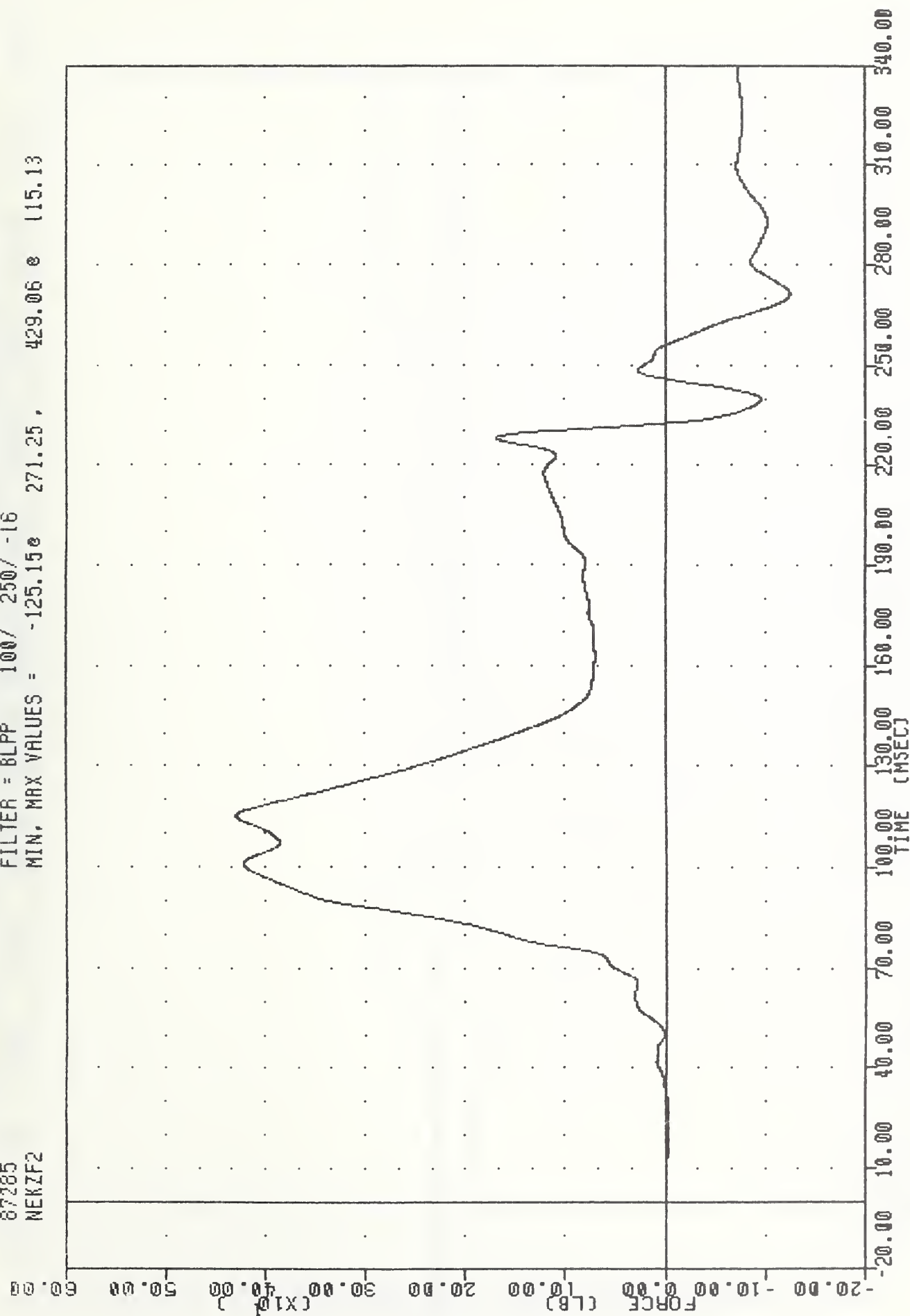
FILTER = BLPP 100/ 250/ -16  
 MIN, MAX VALUES = -16.31# 223.25, 269.52 # 124.50



CHRYSLER LEBARON INTO FRONTAL BARRIER  
 PASSENGER NECK FORCE X AXIS LBS (SHEAR)

TRC  
208 FRONTAL CRASH TEST  
87285  
NEKZF2

FILTER = BLPP 100/ 250/ -16  
MIN. MAX VALUES = -125.15e 271.25, 429.06 e 115.13



CHRYSLER LEBARON INTO FRONTAL BARRIER  
PASSENGER NECK FORCE Z AXIS LBS (AXIAL)

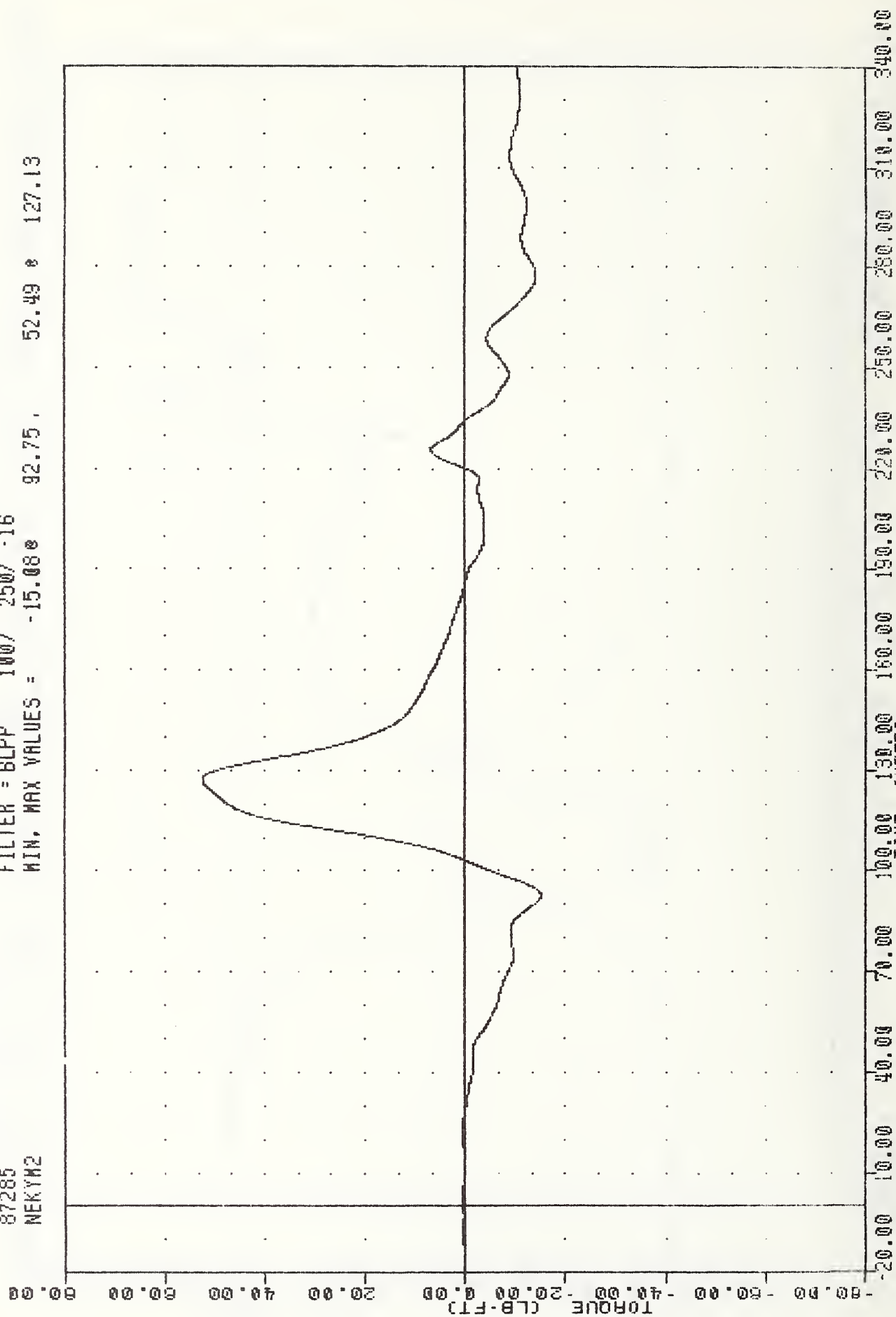
TAC  
 87285  
 NEKYN2

871012

200 FRONTAL CRASH TEST

FILTER = BLPP 100/ 250/ -16

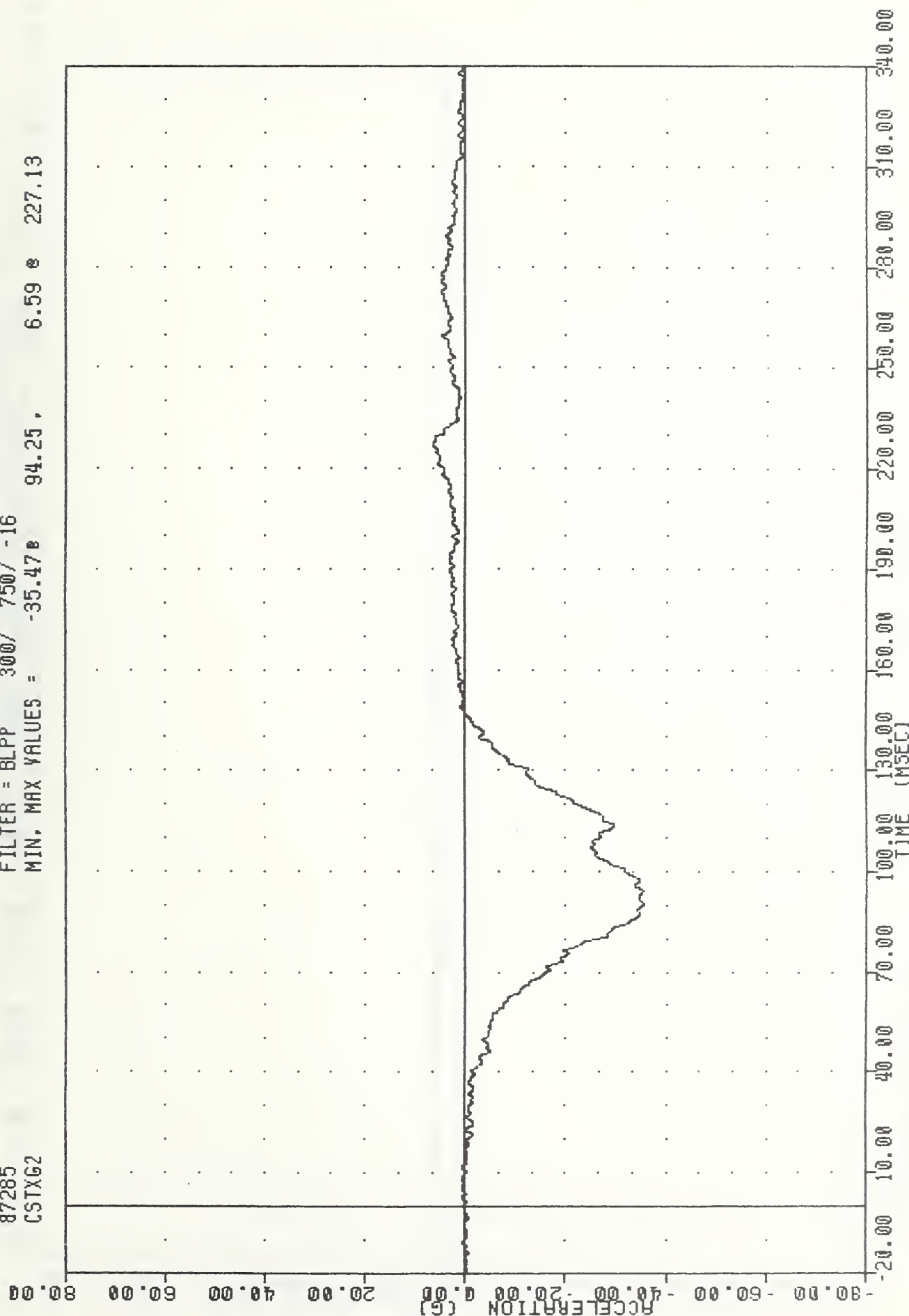
MIN. MAX VALUES = -15.08 92.75 52.49 127.13



CHRYSLER LEBARON INTO FRONTAL BARRIER  
 PASSENGER NECK MOMENT Y AXIS FT-LBS

TRC , 871012  
200 FRONTAL CRASH TEST  
87285  
CSTXG2

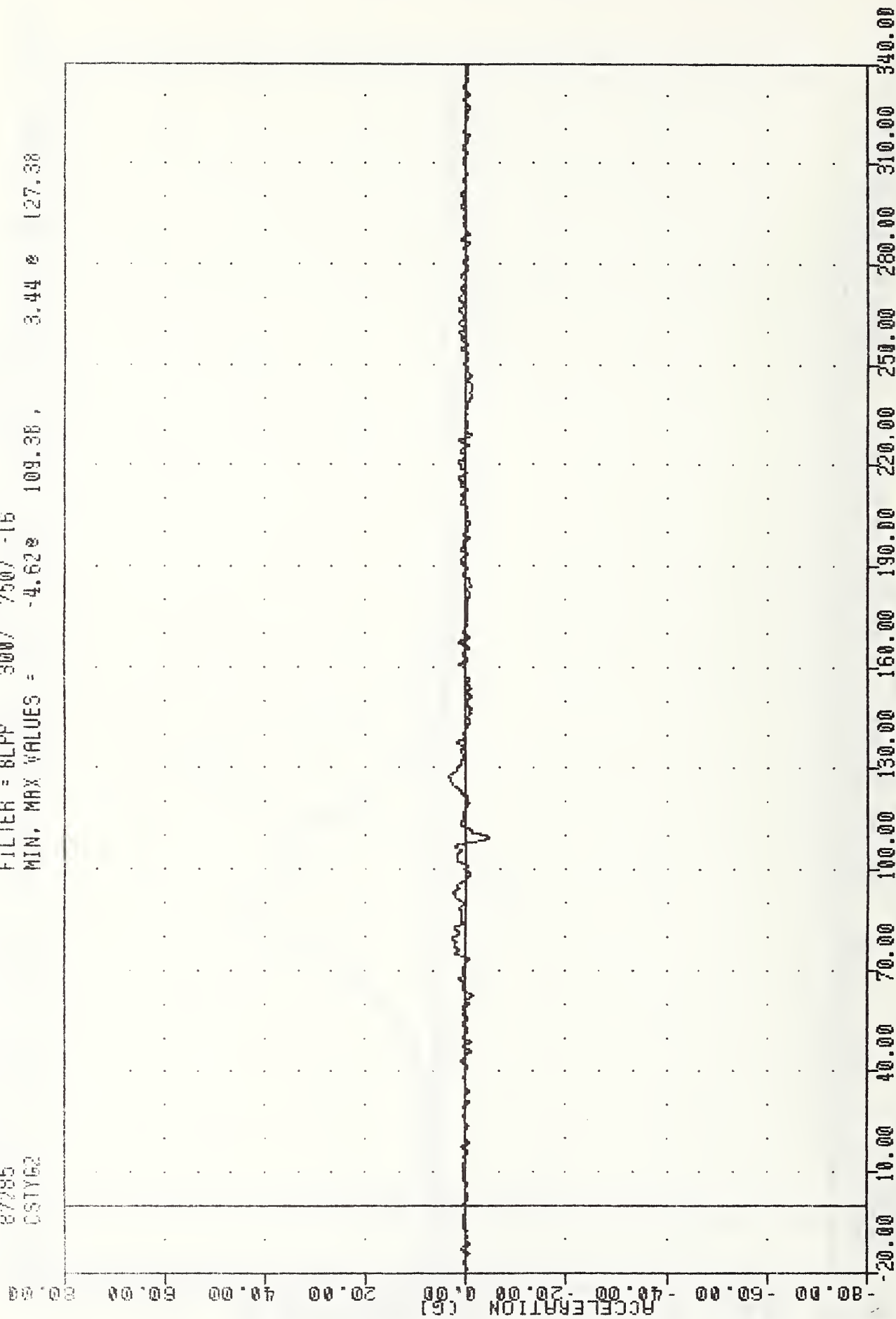
FILTER = BLPP 300/ 750/ -16  
MIN. MAX VALUES = -35.47 94.25 6.59 227.13



CHRYSLER LEBARON INTO FRONTAL BARRIER  
PASSENGER CHEST X AXIS ACCELERATION

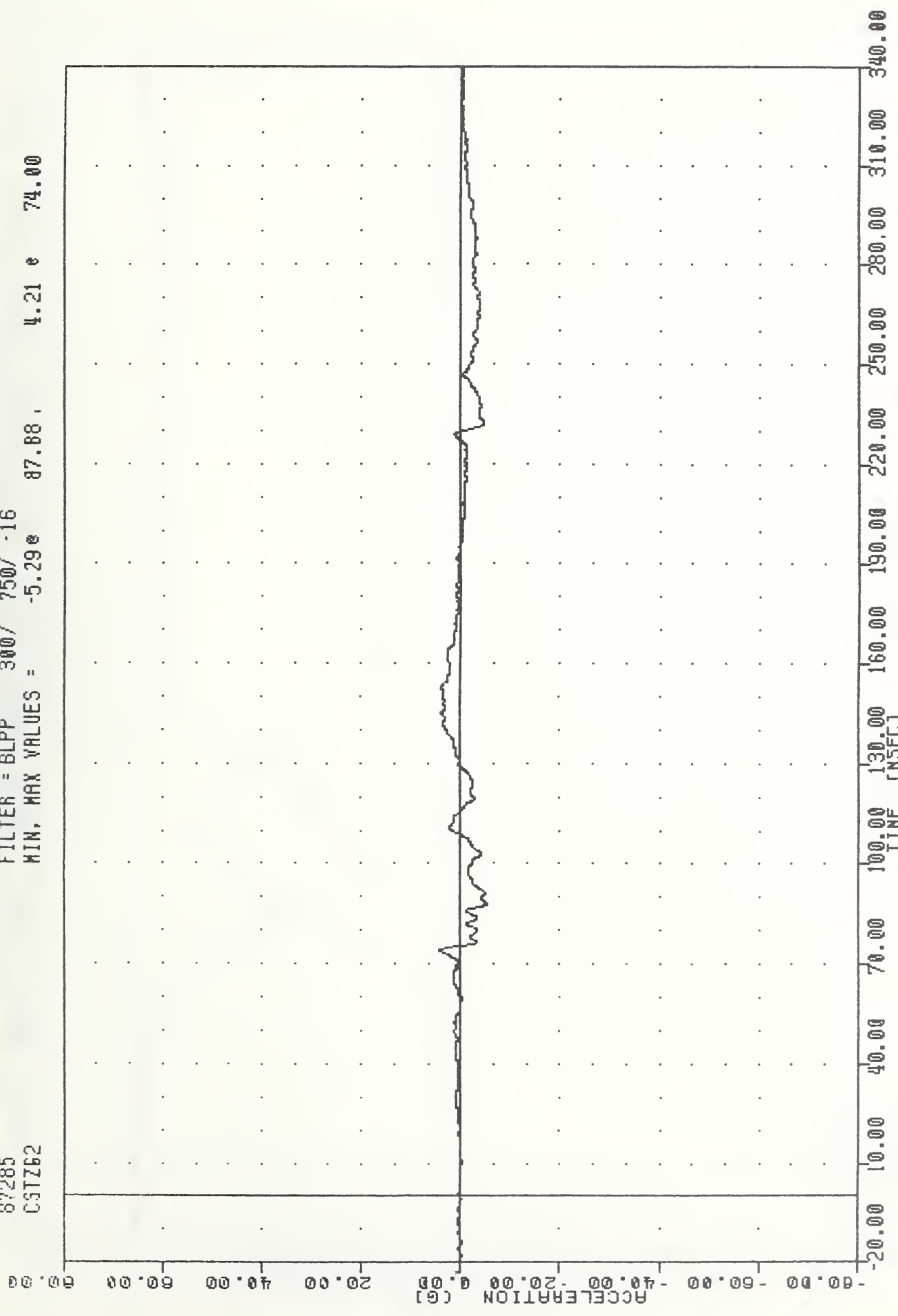
TAC , 871012  
 208 FRONTAL CRASH TEST  
 87285  
 CSTY62

FILTER = 8LPP 300/ 750/ -15  
 MIN. MAX VALUES = -4.62g 109.38g 3.44 g 127.38



TAC , 871012  
 200 FRONTAL CRASH TEST  
 87285  
 CSTZ62

FILTER = BLPP 300/ 750/ -16  
 MIN, MAX VALUES = -5.29e 87.88 , 4.21 e 74.00

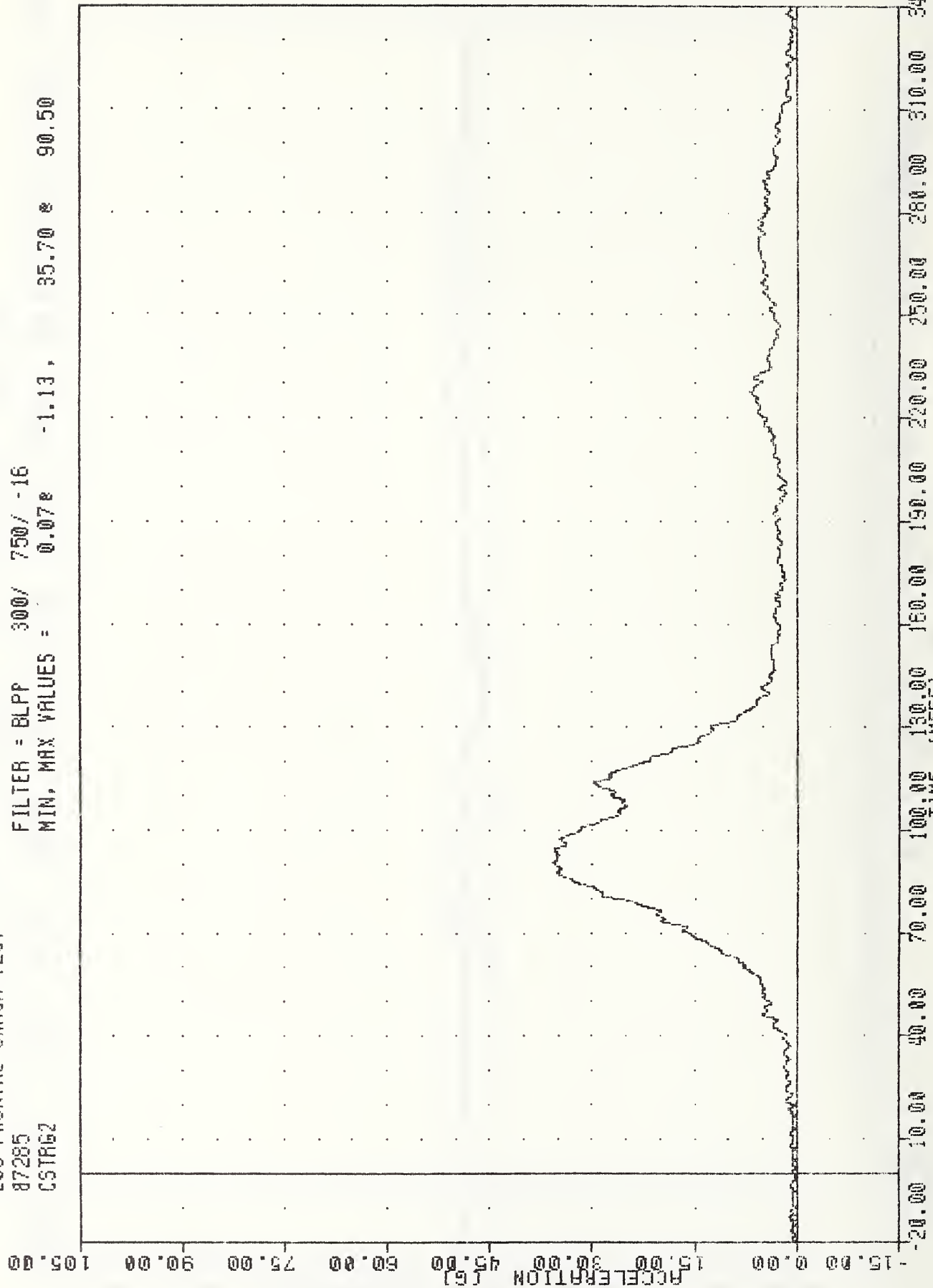


CHRYSLER LEBARON INTO FRONTAL BARRIER  
 PASSENGER CHEST Z AXIS ACCELERATION



TRC , 871012  
 208 FRONTAL CRASH TEST  
 87285  
 CSTR62

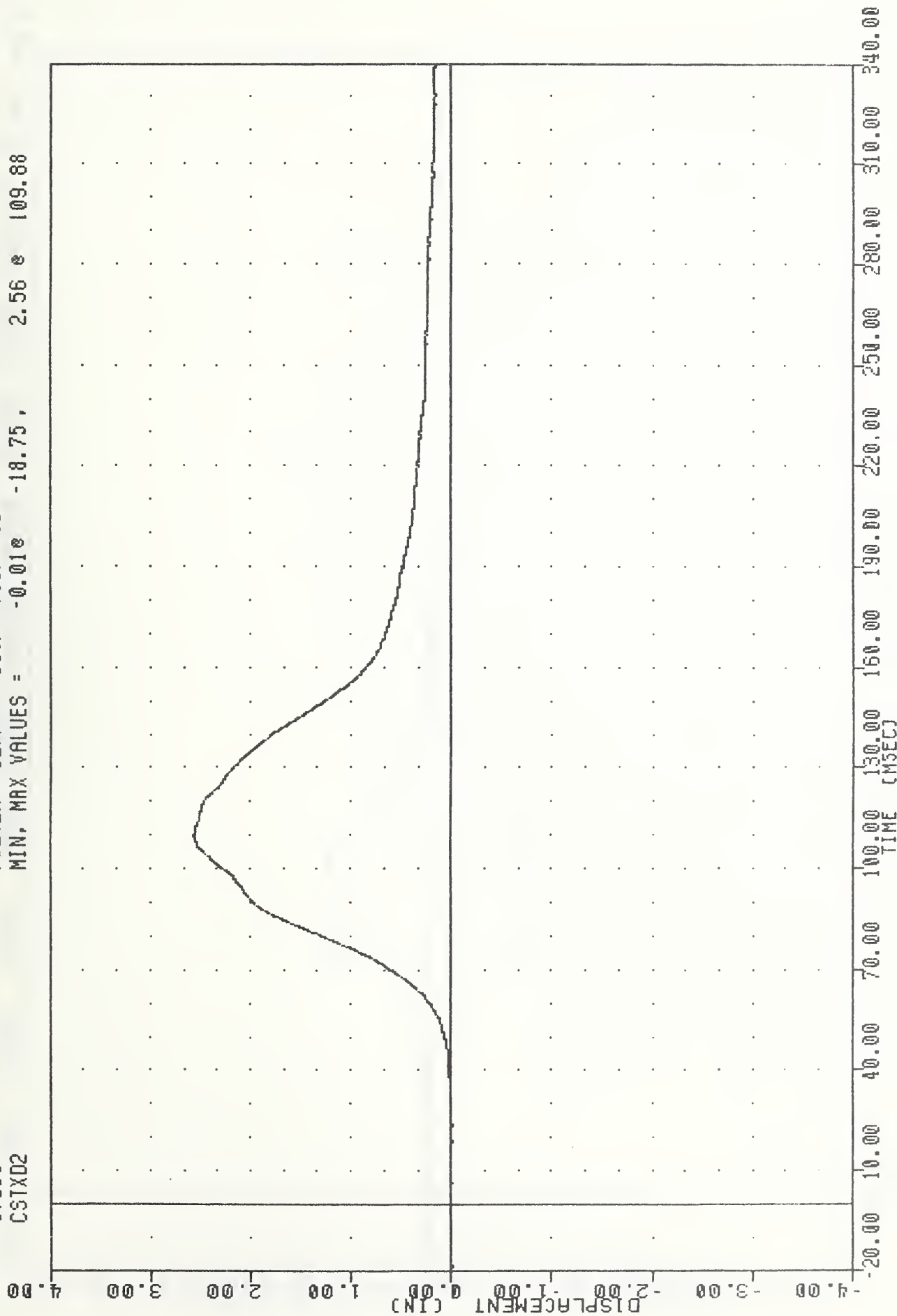
FILTER = BLPP 300/ 750/ -16  
 MIN, MAX VALUES = 0.078 -1.13, 35.70 90.50



CHRYSLER LeBARON INTO FRONTAL BARRIER  
 PASSENGER CHEST RESULTANT ACCELERATION

TRC 871012  
208 FRONTAL CRASH TEST  
87285  
CSTXD2

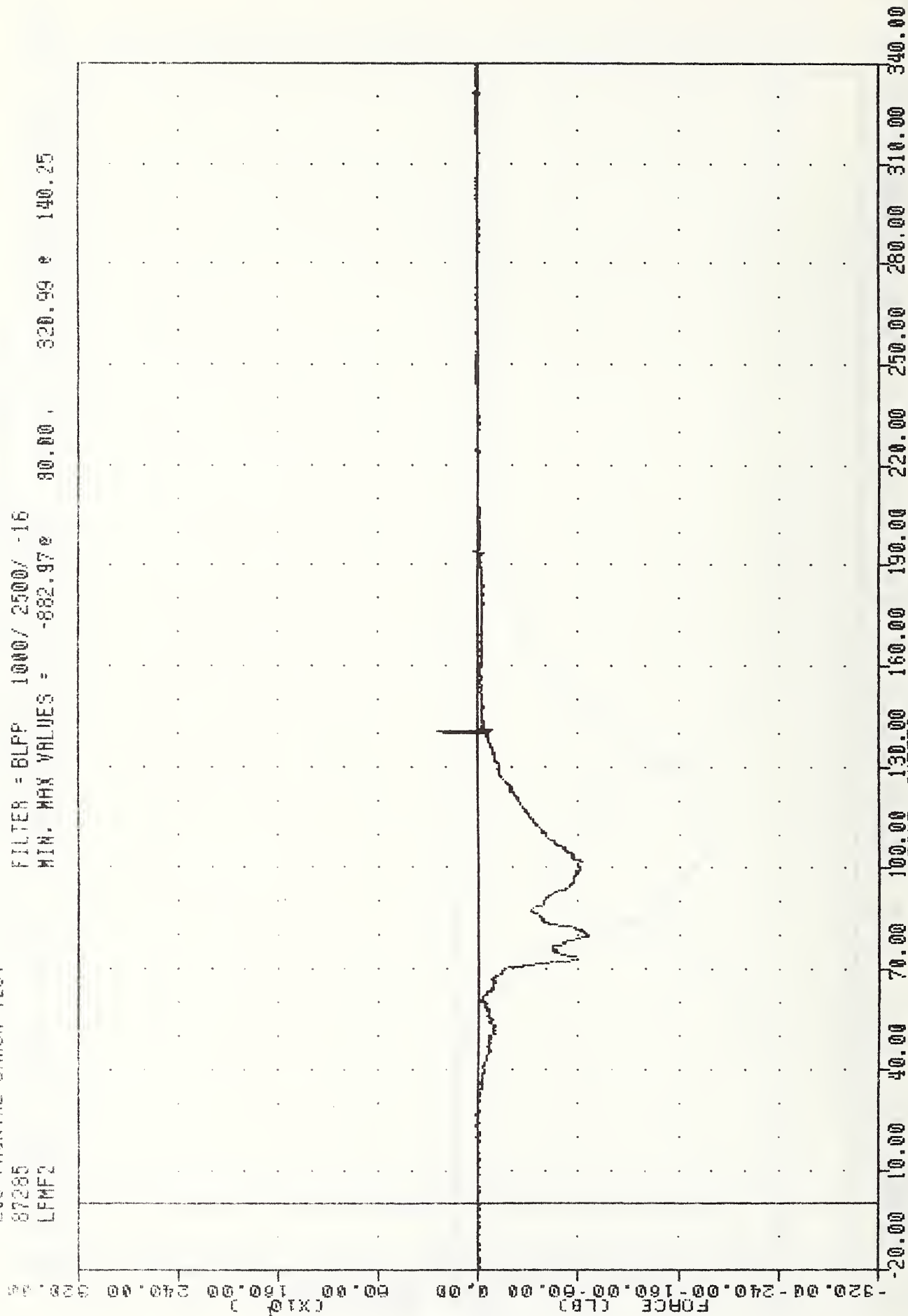
FILTER = BLPP 300/ 750/ -16  
MIN, MAX VALUES = -0.01e -18.75, 2.56 e 109.88



CHRYSLER LEBARON INTO FRONTAL BARRIER  
PASSENGER CHEST DISPLACEMENT INCHES

TBC  
 871012  
 200 FRONTAL CRASH TEST  
 87285  
 LFMF2

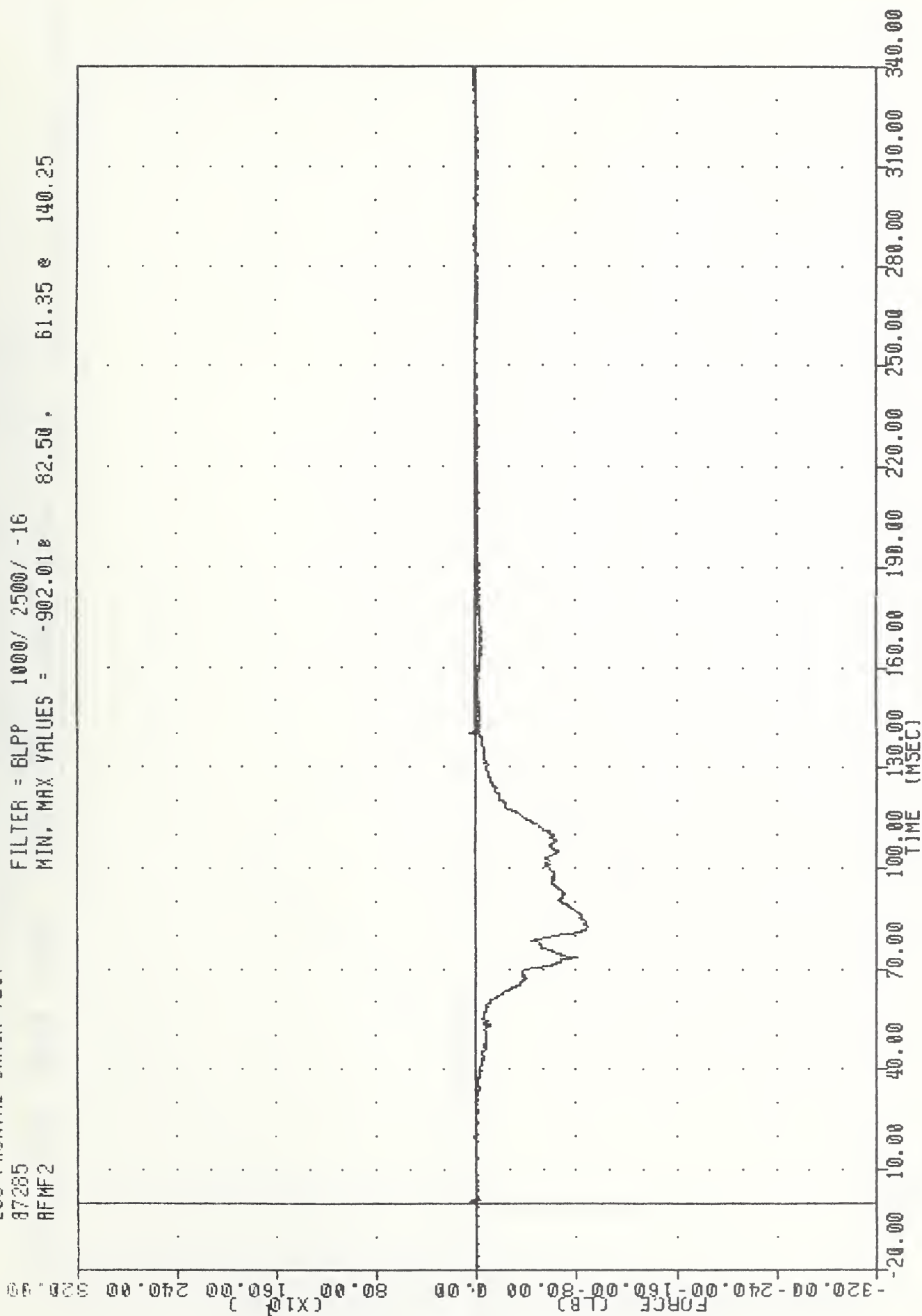
FILTER = BLPP 1000/ 2500/ -16  
 MIN. MAX VALUES = -882.97e 80.00 320.99 e 140.25



CHRYSLER LEBARON INTO FRONTAL BARRIER  
 PASSENGER LEFT FEMUR FORCE LBS

TRC , 871012  
 208 FRONTAL CRASH TEST  
 87285  
 RFWF2

FILTER = BLPP 1000/ 2500/ -16  
 MIN. MAX VALUES = -902.018 82.50 , 61.35 e 140.25

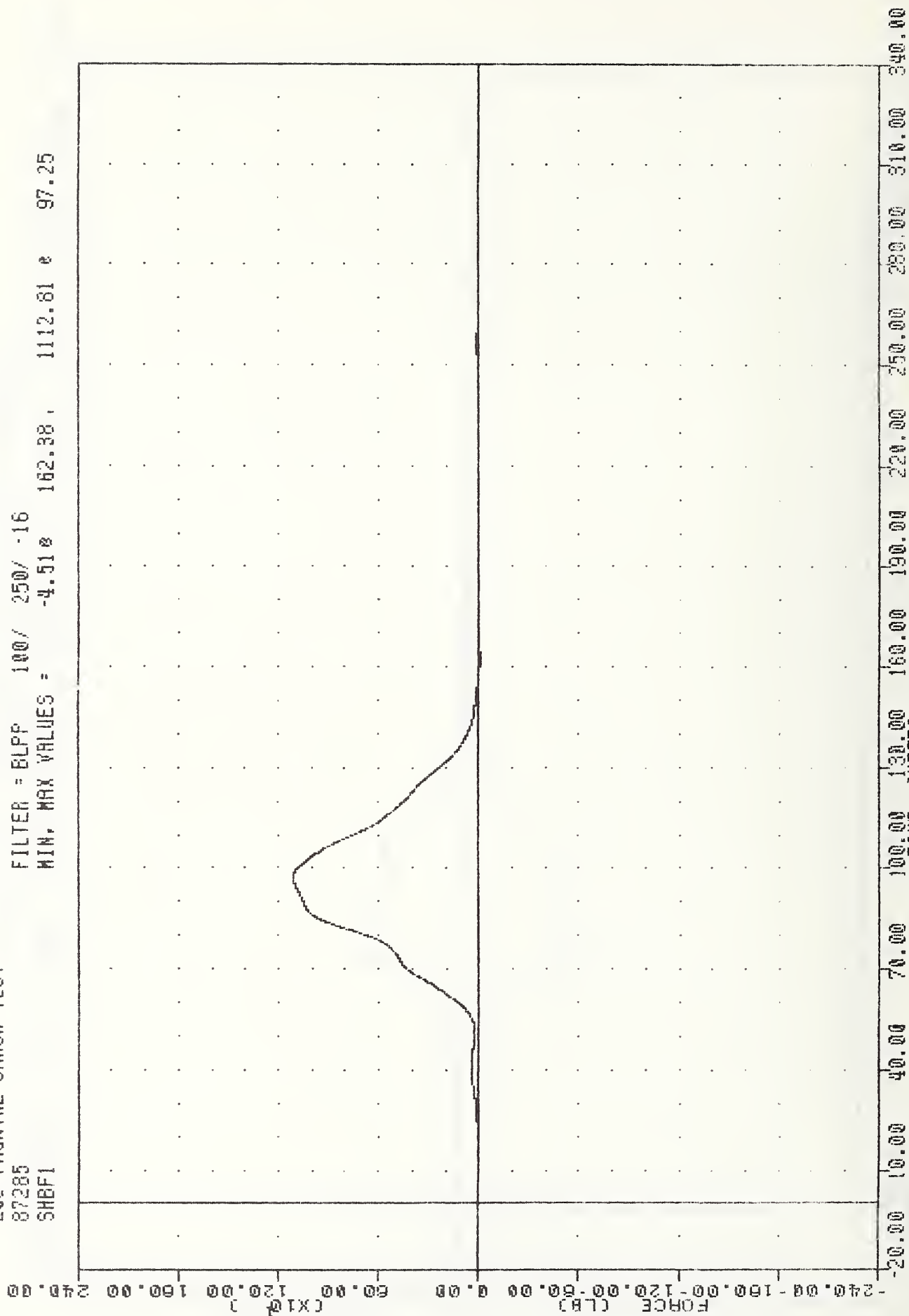


CHRYSLER LEBARON INTO FRONTAL BARRIER  
 PASSENGER RIGHT FEMUR FORCE LBS



TAC , 871012  
 206 FRONTAL CRASH TEST  
 87285  
 SHBF1

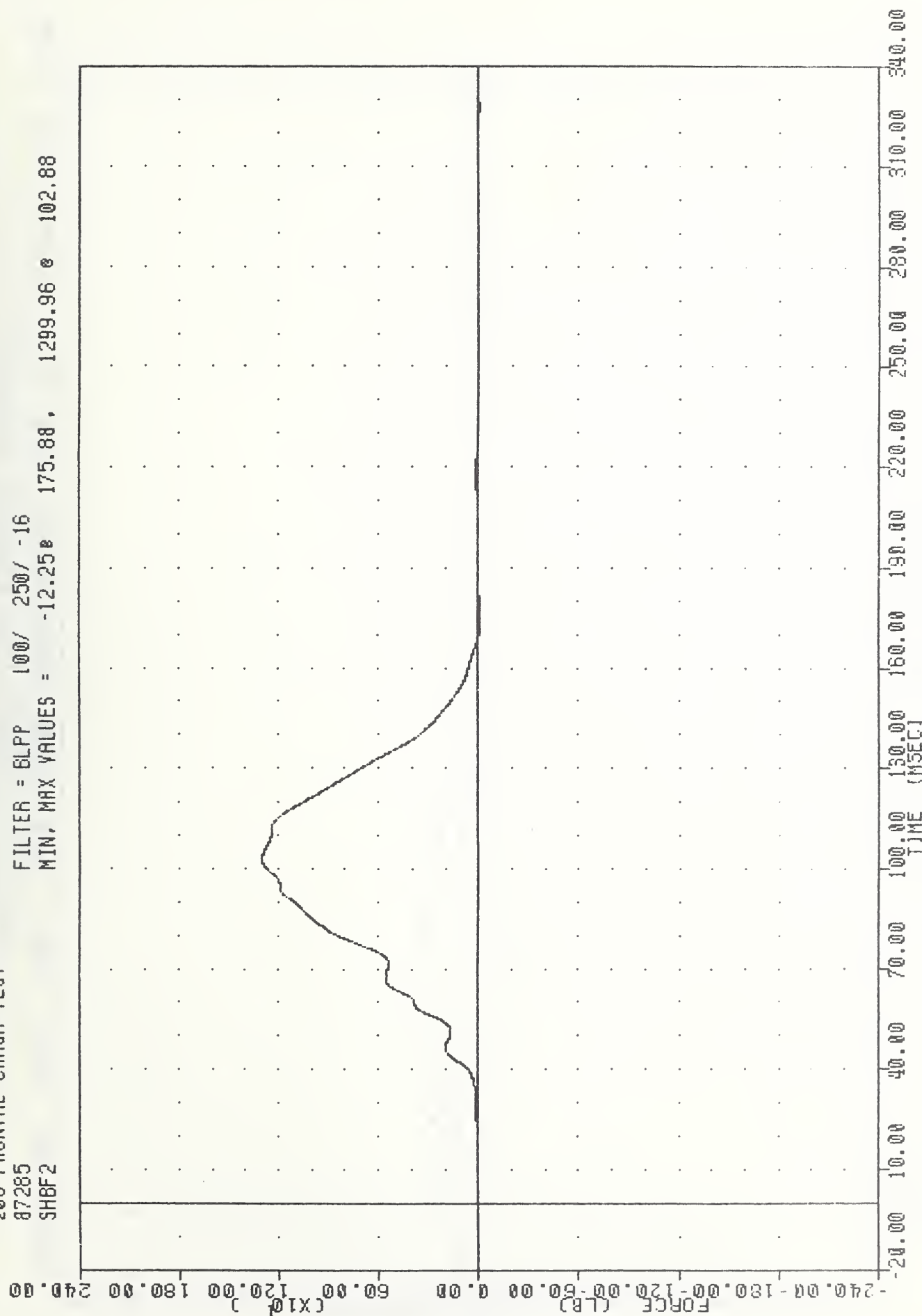
FILTER = BLPP 100/ 250/ -16  
 MIN, MAX VALUES = -4.518 162.38 , 1112.81 e 97.25



CHRYSLER LEBARON INTO FRONTAL BARREL  
 DRIVER'S PASSIVE BELT INBOARD FORCE LBS

TRC , 871012  
 200 FRONTAL CRASH TEST  
 87285  
 9HBF2

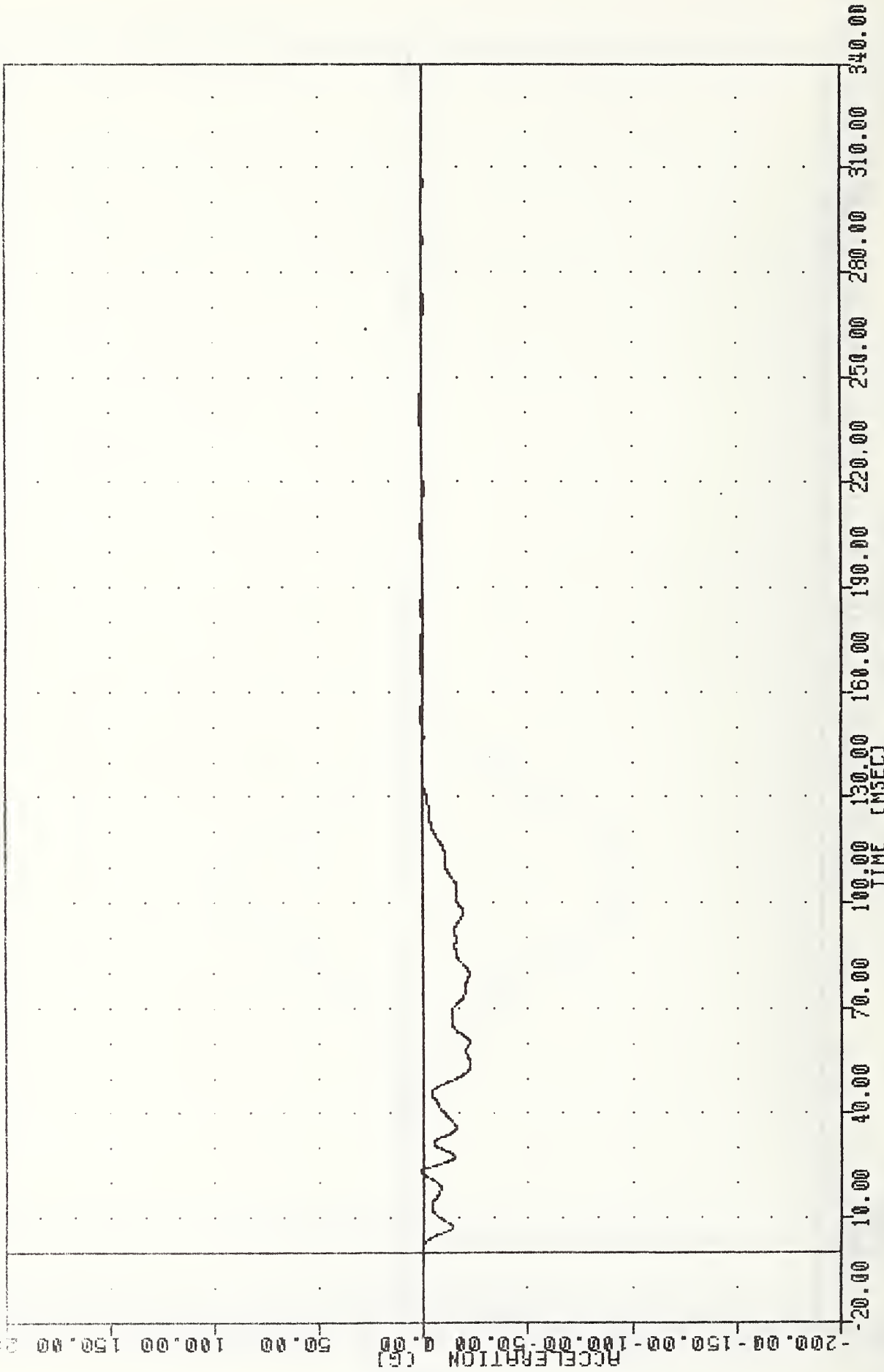
FILTER = BLPP 100/ 250/ -16  
 MIN, MAX VALUES = -12.25e 175.88 , 1299.96 e 102.88



CHRYSLER LEBARON INTO FRONTAL BARRIER  
 PASSENGER'S PASSIVE BELT INBOARD FORCE LBS

TRC , 871012  
 209 FRONTAL CRASH TEST  
 87285  
 TLXG1

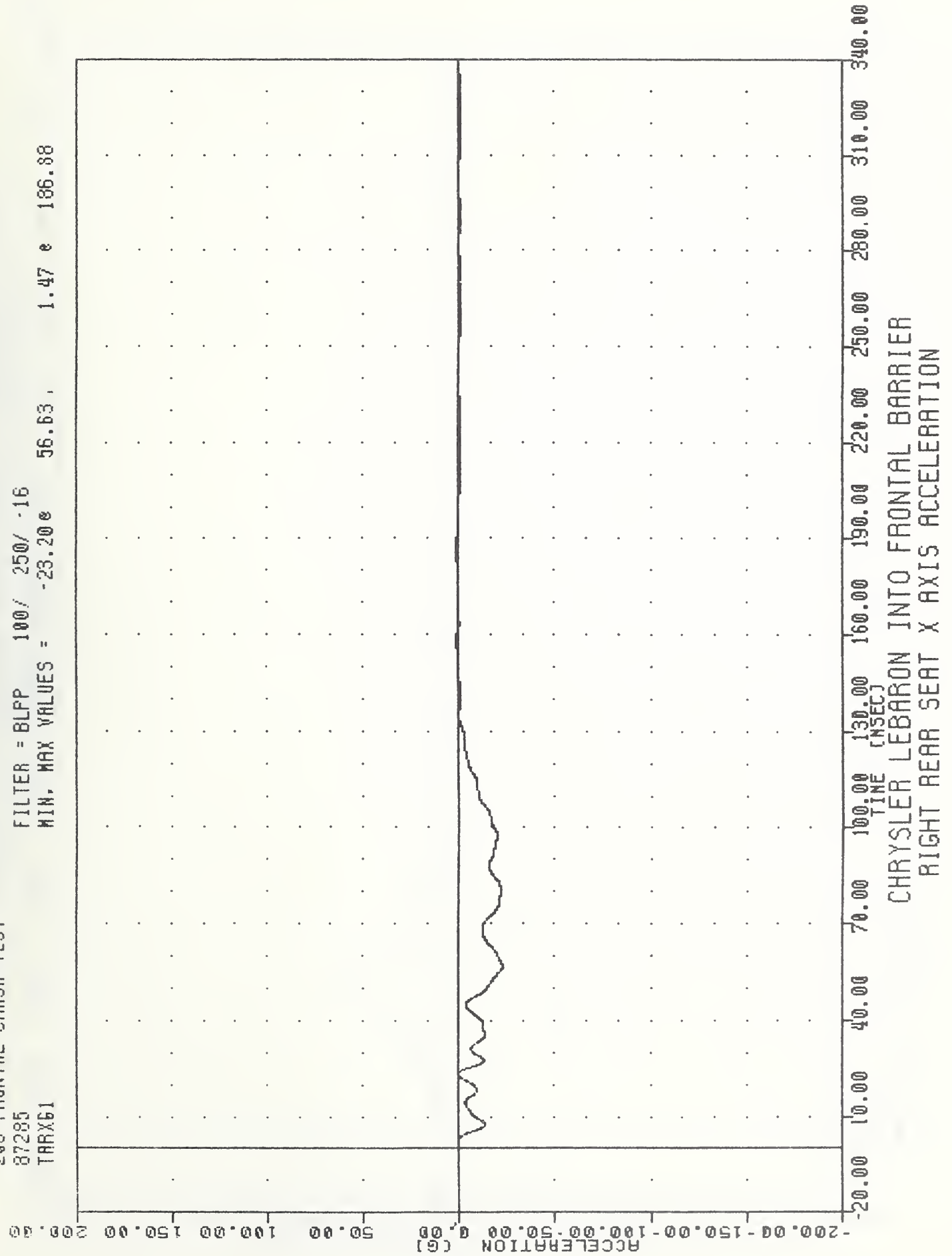
FILTER = 8LPP 100/ 250/ -16  
 MIN. MAX VALUES = -21.99e 54.13, 1.46 e 153.00



CHRYSLER LEBARON INTO FRONTAL BARRIER  
 LEFT REAR SEAT X AXIS ACCELERATION

TAC , 871012  
 208 FRONTAL CRASH TEST  
 87285  
 TARX61

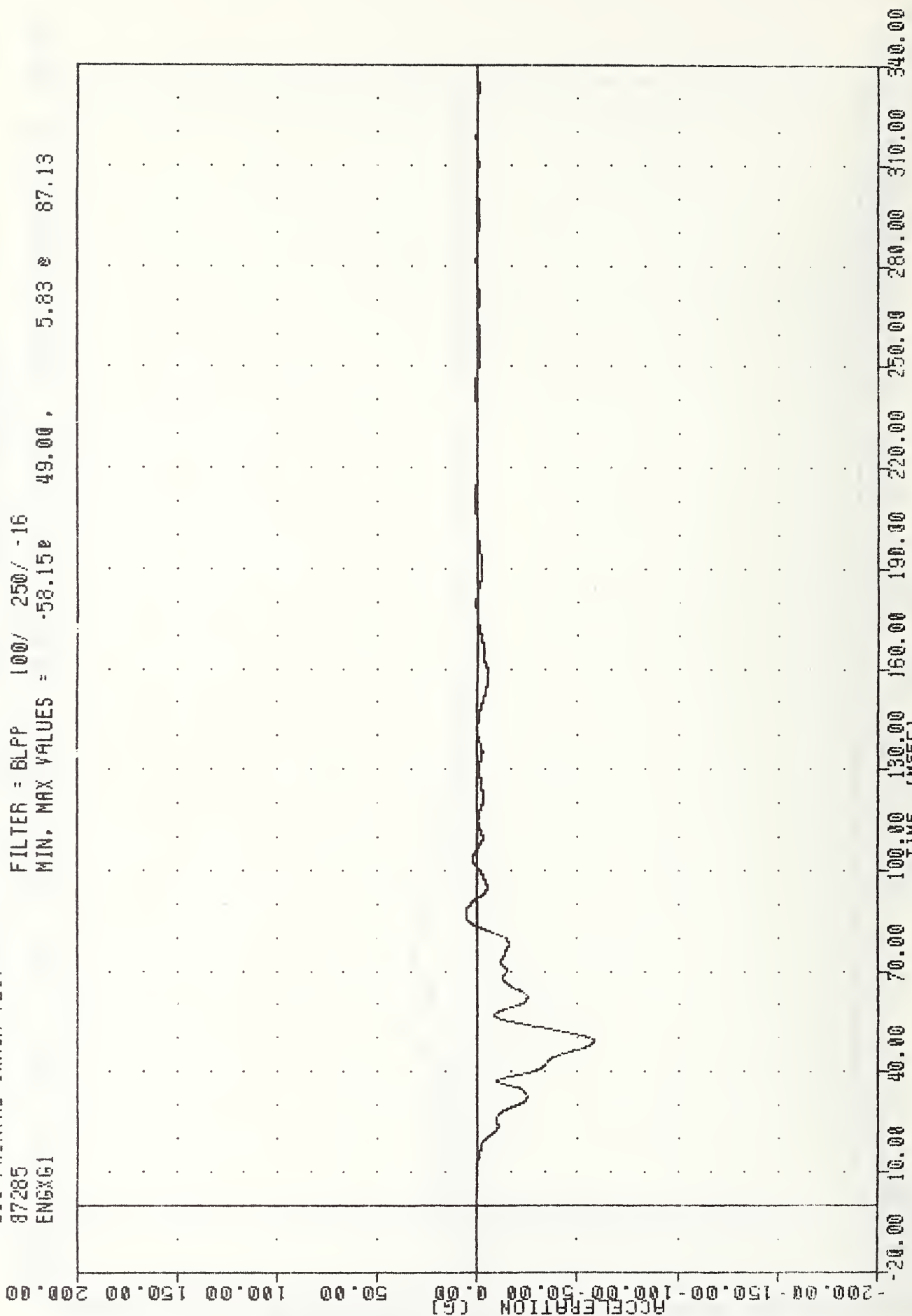
FILTER = BLPP 100/ 250/ -16  
 MIN. MAX VALUES = -23.20e 56.63 , 1.47 e 186.88





TRC .871012  
 200 FRONTAL CRASH TEST  
 87285  
 ENGCG1

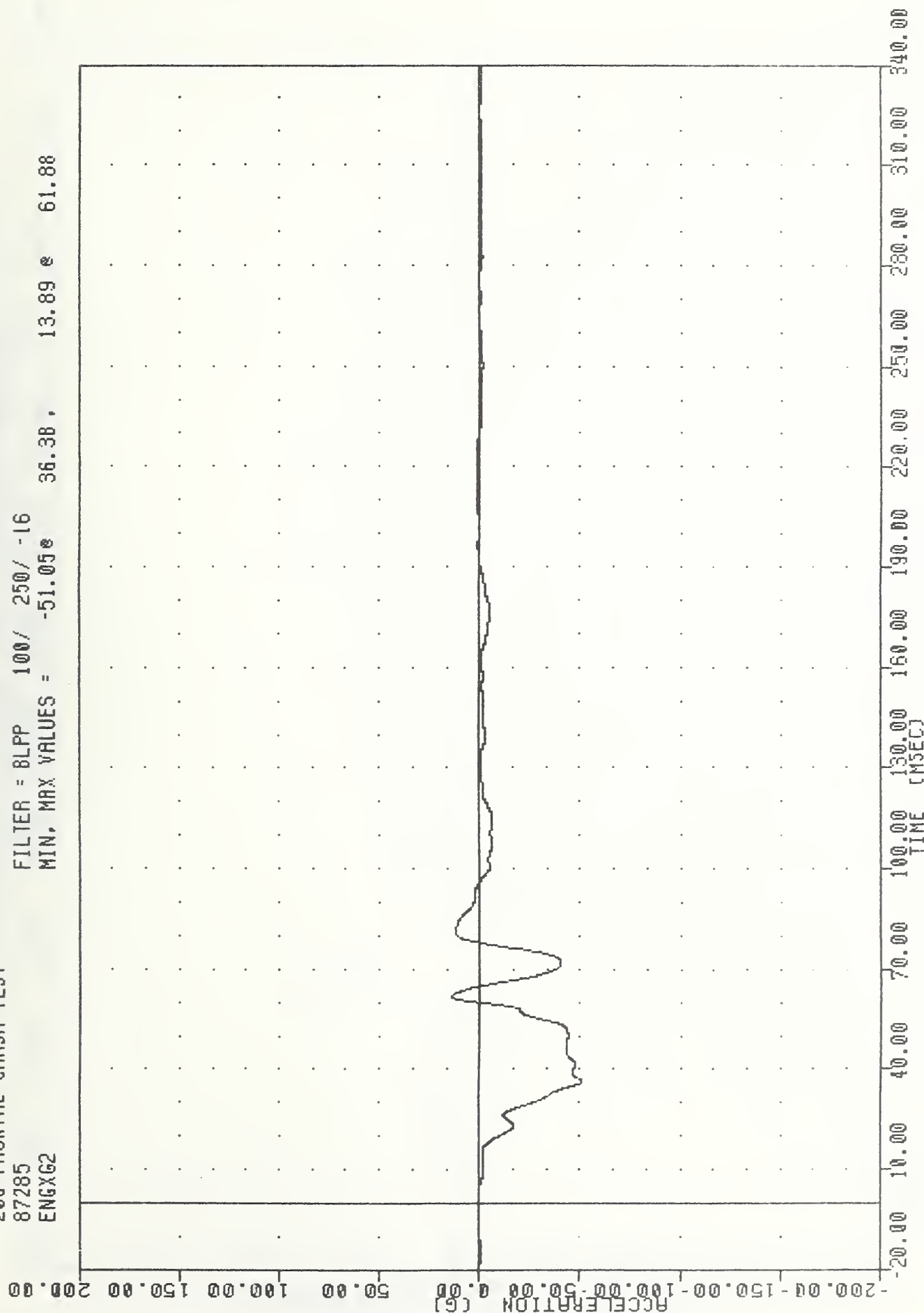
FILTER = BLPP 100/ 250/ -16  
 MIN. MAX VALUES = -58.150 49.00, 5.83 0 87.13



CHRYSLER LEBARON INTO FRONTAL BARRIER  
 ENGINE UPPER BLOCK X AXIS ACCELERATION

TRC , 871012  
 208 FRONTAL CRASH TEST  
 87285  
 ENGXC2

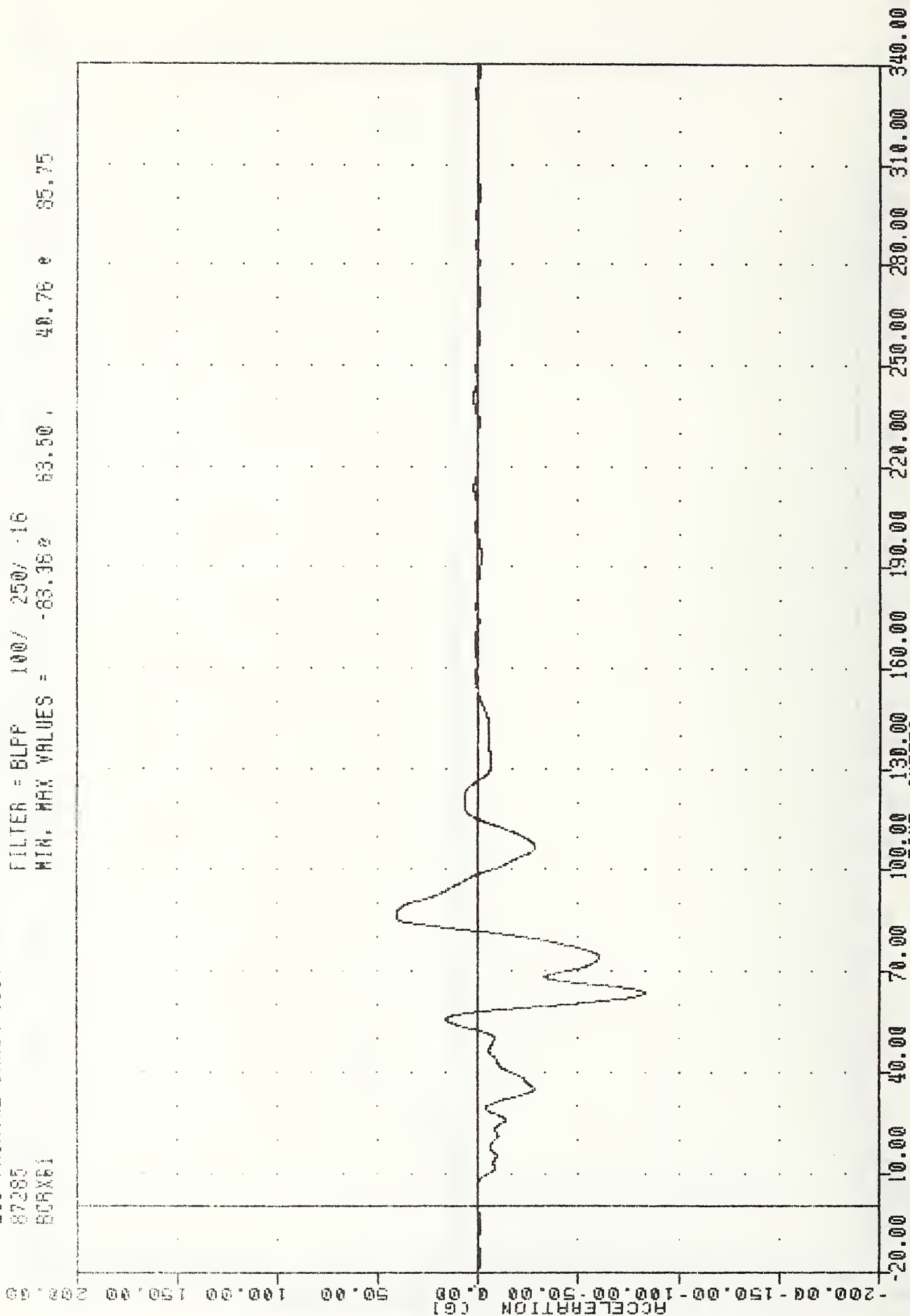
FILTER = BLPP 100/ 250/ -16  
 MIN, MAX VALUES = -51.05e 36.38 , 13.89 e 61.88



CHRYSLER LEBARON INTO FRONTAL BARRIER  
 ENGINE BOTTOM X AXIS ACCELERATION

TRC 871012  
 200 FRONTAL CRASH TEST  
 87285  
 BCX61

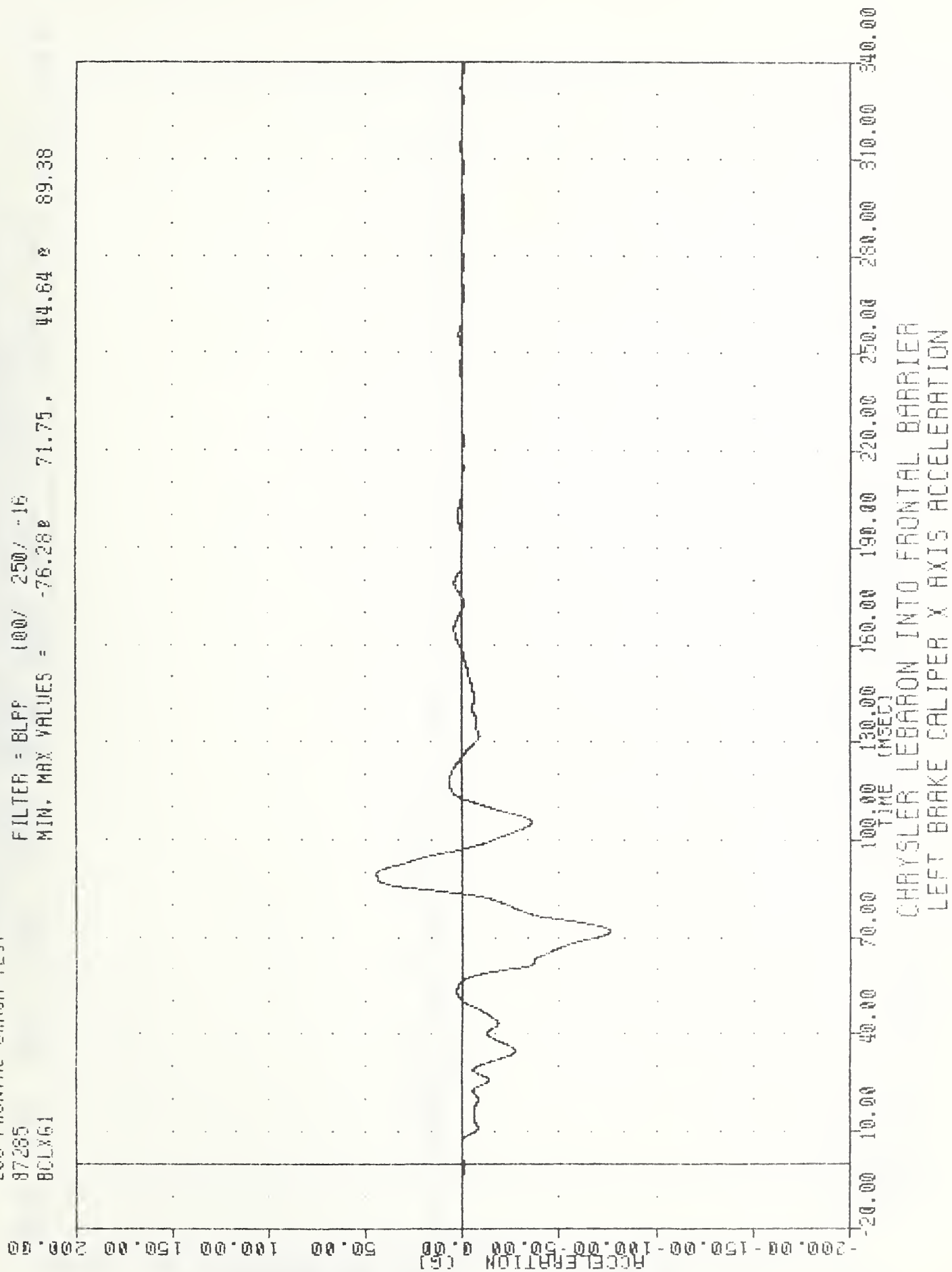
FILTER = BLPP 100/ 250/ -16  
 MIN. MAX VALUES = -83.36 48.78 85.75



CHRYSLER LEBARON INTO FRONTAL BARRIER  
 RIGHT BRAKE CALIPER X AXIS ACCELERATION

TRC , 871012  
 208 FRONTAL CRASH TEST  
 87285  
 BCLX61

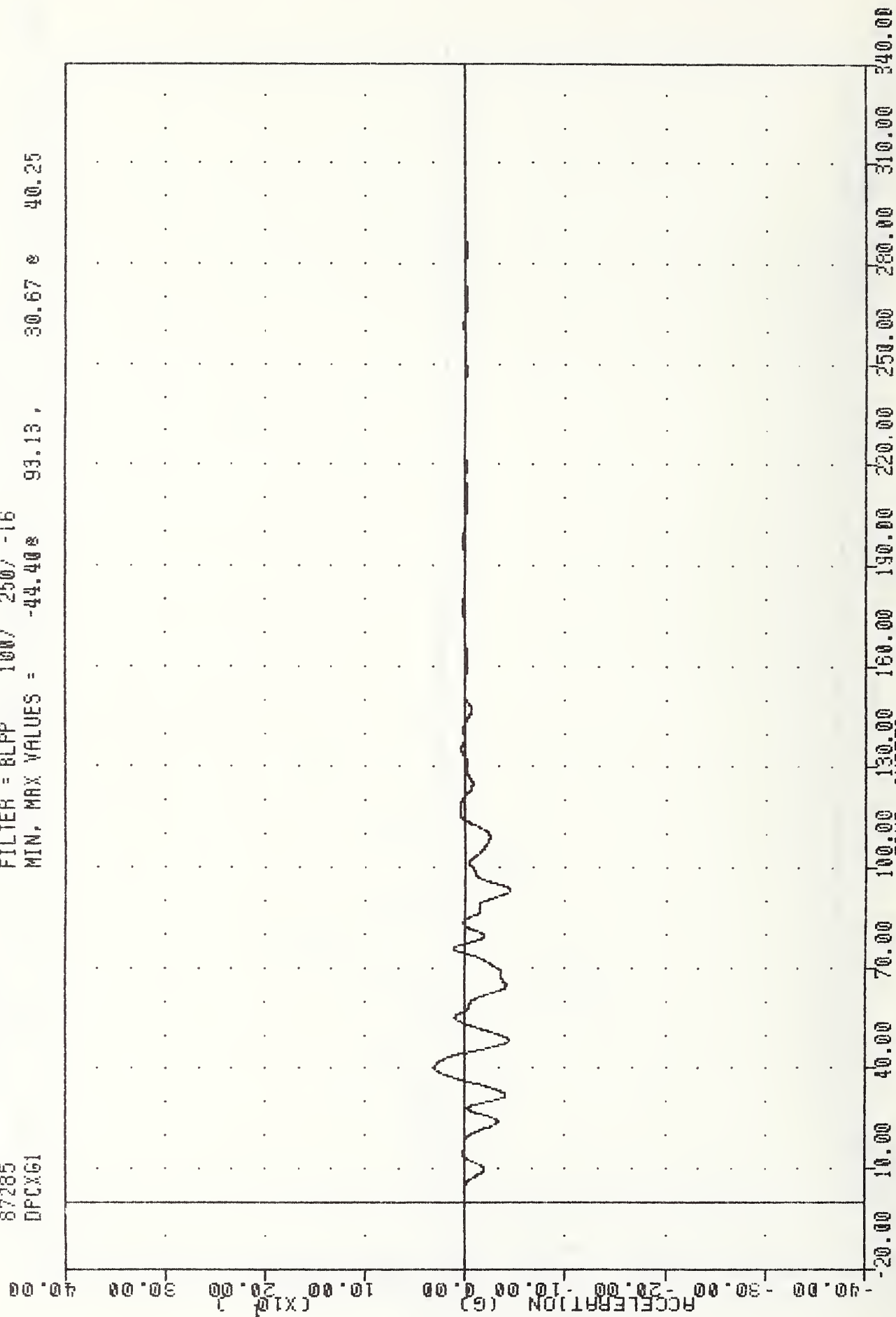
FILTER = BLPP 100/ 250/ -16  
 MIN. MAX VALUES = -76.28 71.75 , 44.64 89.38





TRC , 871012  
 208 FRONTAL CRASH TEST  
 87285  
 DPCXG1

FILTER = BLPP 100/ 250/ -16  
 MIN. MAX VALUES = -44.408 93.13, 30.67 & 40.25



CHRYSLER LEBARON INTO FRONTAL BARRIER  
 DASH PANEL CENTER X AXIS ACCELERATION

APPENDIX C

DUMMY CERTIFICATION INFORMATION

PRE-TEST CALIBRATION

S/N: 143

HYBRID III EXTERIOR DIMENSIONS

Dimensional Symbol	Description	Spec Dimension	Dummy Dimension SN 143
A	Sitting Height (Erect)	34.8 $\pm$ .2	<u>34.7</u>
B	Shoulder Pivot Height	20.2 $\pm$ .3	<u>20.0</u>
C	"H" Point Height	3.4 ref.	<u>3.4</u>
D	"H" Point Location from Back Line	5.4 ref.	<u>5.4</u>
E	Shoulder Pivot Location from Back Line	3.5 $\pm$ .2	<u>3.6</u>
F	Thigh Clearance	5.8 $\pm$ .3	<u>5.9</u>
G	Back of Elbow to Wrist Pivot	11.7 $\pm$ .3	<u>11.6</u>
H	Occiput to Z-Axis	1.7 $\pm$ .1	<u>1.7</u>
I	Shoulder - Elbow Length	13.3 $\pm$ .3	<u>13.3</u>
J	Elbow Rest Height	7.9 $\pm$ .4	<u>8.1</u>
K	Buttock Knee Length	23.3 $\pm$ .5	<u>23.0</u>
L	Popliteal Height	17.4 $\pm$ .5	<u>17.4</u>
M	Knee Pivot Height	19.4 $\pm$ .3	<u>19.5</u>
N	Buttock Popliteal Length	18.3 $\pm$ .5	<u>18.0</u>
O	Chest Depth	8.7 $\pm$ .3	<u>8.7</u>
P	Foot Length	10.2 $\pm$ .3	<u>10.2</u>
V	Shoulder Breadth	16.9 $\pm$ .3	<u>16.8</u>
W	Foot Breadth	3.9 $\pm$ .3	<u>4.0</u>
Y	Chest Circumference	38.8 $\pm$ .6	<u>39.0</u>
Z	Waist Circumference	33.5 $\pm$ .6	<u>34.0</u>
AA	Location for Measurement of Chest Circumference	17.0 $\pm$ .1	<u>17.0</u>
BB	Location for Measurement of Waist Circumference	9.0 $\pm$ .1	<u>9.0</u>

NOTE: The "H" point is located 1.83 inches forward and 2.57 inches down from the center of the pelvis angle reference hole.



## TRANSPORTATION RESEARCH CENTER OF OHIO

## HEAD DROP TEST

HYBRID III

04-AUG-87

VRTC880098 H-143C1HD1

HY3 H-143 HEAD DROP CAL 01

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78 DEG. F	71.10 DEG. F
RELATIVE HUMIDITY	10% - 70%	51.00 %
PEAK RESULTANT ACCELERATION	225 - 275 G	264.44 G
PEAK LATERAL ACCELERATION	15 G MAX	-4.49 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN Chas Middleton

TRANSPORTATION RESEARCH CENTER OF OHIO

NECK EXTENSION TEST

HYBRID III

3 AXIS NECK TRANSDUCER

10-OCT-87

VRTC

143C1BNE1

HY3 SN143 CAL1B NECK EXTENSION

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	69 - 72 DEG. F	71.10 DEG. F
RELATIVE HUMIDITY	10% - 70%	36.00 %
IMPACT VELOCITY	19.50 - 20.30 FPS	19.56 FPS
PENDULUM	10 MS   17.20 - 21.20 G	21.15 G
DECELERATION	20 MS   14.00 - 19.00 G	15.86 G
	30 MS   11.00 - 16.00 G	14.05 G
MAX PENDULUM G ABOVE 30 MS	22 G MAX	14.03 G
DECELERATION-TIME CURVE		
DECAY TIME TO 5 G	38 - 46 MS	38.13 MS
D PLANE	MAX   81 - 106 DEG.	95.18 DEG.
ROTATION	TIME   72 - 82 MS	78.25 MS
MOMENT ABOUT OCCIPITAL	MIN   -59.0/-39.0 FT.LB	-53.67 FT.LBS
CONDYLE	TIME   65 - 79 MS	70.75 MS
ROTATION ANGLE-TIME CURVE		
DECAY TIME TO ZERO	147 - 174 MS	164.63 MS
NEGATIVE MOMENT-TIME CURVE		
DECAY TIME TO ZERO	120 - 148 MS	147.50 MS

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN *Chas. Middleton*

TRANSPORTATION RESEARCH CENTER OF OHIO

NECK FLEXION TEST

HYBRID III

3 AXIS NECK TRANSDUCER

10-OCT-87

VRTC

143C1BNF1

HY3 SN143 CAL1B NECK FLEXION

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	69 - 72 DEG. F	70.40 DEG. F
RELATIVE HUMIDITY	10% - 70%	36.00 %
IMPACT VELOCITY	22.6 - 23.4 FPS	23.17 FPS
PENDULUM	10 MS   22.50 - 27.50 G	24.28 G
DECELERATION	20 MS   17.60 - 22.60 G	20.05 G
	30 MS   12.50 - 18.50 G	16.06 G
MAX PENDULUM G ABOVE 30 MS	29 G MAX	15.98 G
DECELERATION-TIME CURVE		
DECAY TIME TO 5 G	34 - 42 MS	39.38 MS
D PLANE	MAX   64 - 78 DEG.	70.74 DEG.
ROTATION	TIME   57 - 64 MS	62.00 MS
MOMENT ABOUT OCCIPITAL	MAX   65 - 80 FT.LBS	75.49 FT.LBS
CONDYLE	TIME   47 - 58 MS	53.50 MS
ROTATION ANGLE-TIME CURVE		
DECAY TIME TO ZERO	113 - 128 MS	117.88 MS
POSITIVE MOMENT-TIME CURVE		
DECAY TIME TO ZERO	97 - 107 MS	100.88 MS

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN *Chris Middleton*

TRANSPORTATION RESEARCH CENTER OF OHIO

THORAX IMPACT TEST

HYBRID III

10-OCT-87

VRTC

143C1BTH1

HY3 SN143 CAL 1B H.S. THORAX 01

-----		
	HIGH SPEED TEST	
	-----	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
=====		
TEMPERATURE	69 - 72 DEG. F	71.50 DEG. F
-----		
RELATIVE HUMIDITY	10% - 70%	35.00 %
-----		
PENDULUM VELOCITY	21.6-22.4 FT/SEC	22.19 FT/SEC
-----		
MAXIMUM DEFLECTION	2.50 - 2.86 INCHES	2.82 INCHES
-----		
MAXIMUM RESISTIVE FORCE	1080 - 1245 POUNDS	1258.0 POUNDS*
-----		
INTERNAL HYSTERESIS	69% - 85%	74.7%
-----		

\*\*\* TEST DOES NOT MEET SPECIFICATIONS \*\*\*

TECHNICIAN Chas. Middleton



## TRANSPORTATION RESEARCH CENTER OF OHIO

## KNEE IMPACT TEST

HYBRID III

04-AUG-87

LEFT KNEE  
VRTC880098 H-143C1LK1

HY3 H-143 L.KNEE 11LB CAL 01

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78 DEG. F	70.70 DEG. F
RELATIVE HUMIDITY	10% - 70%	50.00 %
PROBE VELOCITY	6.8 - 7.0 FT/SEC	6.84 FT/SEC
PEAK KNEE IMPACT FORCE	996 - 1566 LBS.	1380.75 LBS.
PROBE WEIGHT	11.0 LBS.	

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN

*Chas. Middleton*

## TRANSPORTATION RESEARCH CENTER OF OHIO

## KNEE IMPACT TEST

HYBRID III

04-AUG-87

RIGHT KNEE  
VRTC880098 H-143C1RK1

HY3 H-143 R.KNEE 11LB CAL 1

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78 DEG. F	70.70 DEG. F
RELATIVE HUMIDITY	10% - 70%	50.00 %
PROBE VELOCITY	6.8 - 7.0 FT/SEC	6.84 FT/SEC
PEAK KNEE IMPACT FORCE	996 - 1566 LBS.	1550.37 LBS.
PROBE WEIGHT	11.0 LBS.	

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN *Chas. Middleton*

PRE-TEST CALIBRATION

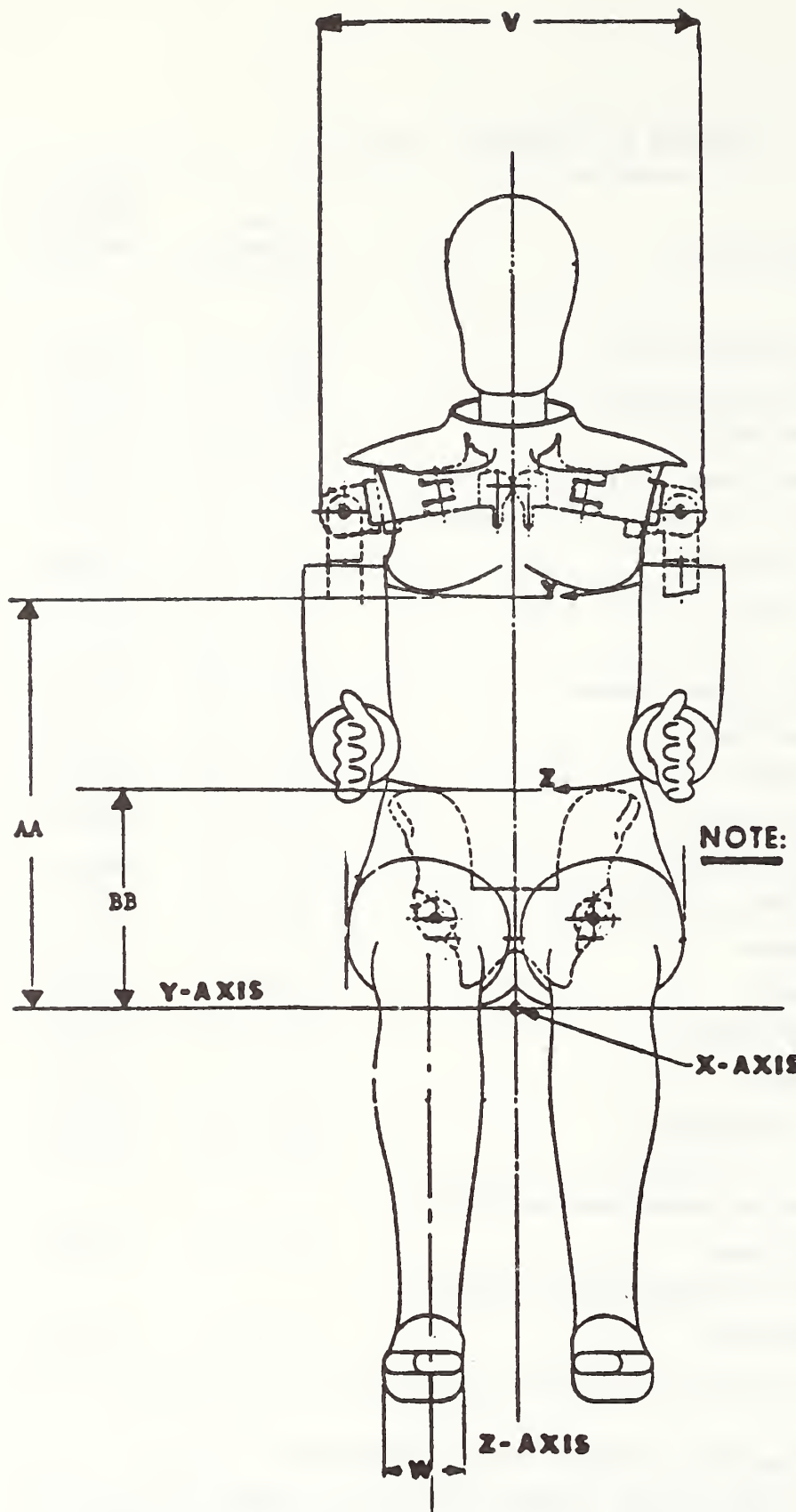
S/N: 45

# HYBRID III EXTERIOR DIMENSIONS

Dimensional Symbol	Description	Spec Dimension	Dummy Dimension SN <u>45</u>
A	Sitting Height (Erect)	34.8 $\pm$ .2	<u>34.6</u>
B	Shoulder Pivot Height	20.2 $\pm$ .3	<u>20.2</u>
C	"H" Point Height	3.4 ref.	<u>3.4</u>
D	"H" Point Location from Back Line	5.4 ref.	<u>5.4</u>
E	Shoulder Pivot Location from Back Line	3.5 $\pm$ .2	<u>3.7</u>
F	Thigh Clearance	5.8 $\pm$ .3	<u>5.8</u>
G	Back of Elbow to Wrist Pivot	11.7 $\pm$ .3	<u>11.5</u>
H	Occiput to Z-Axis	1.7 $\pm$ .1	<u>1.7</u>
I	Shoulder - Elbow Length	13.3 $\pm$ .3	<u>13.6</u>
J	Elbow Rest Height	7.9 $\pm$ .4	<u>7.9</u>
K	Buttock Knee Length	23.3 $\pm$ .5	<u>23.0</u>
L	Popliteal Height	17.4 $\pm$ .5	<u>17.6</u>
M	Knee Pivot Height	19.4 $\pm$ .3	<u>19.6</u>
N	Buttock Popliteal Length	18.3 $\pm$ .5	<u>17.9</u>
O	Chest Depth	8.7 $\pm$ .3	<u>8.6</u>
P	Foot Length	10.2 $\pm$ .3	<u>10.2</u>
V	Shoulder Breadth	16.9 $\pm$ .3	<u>16.8</u>
W	Foot Breadth	3.9 $\pm$ .3	<u>3.8</u>
Y	Chest Circumference	38.8 $\pm$ .6	<u>38.9</u>
Z	Waist Circumference	33.5 $\pm$ .6	<u>33.7</u>
AA	Location for Measurement of Chest Circumference	17.0 $\pm$ .1	<u>17.0</u>
BB	Location for Measurement of Waist Circumference	9.0 $\pm$ .1	<u>9.0</u>

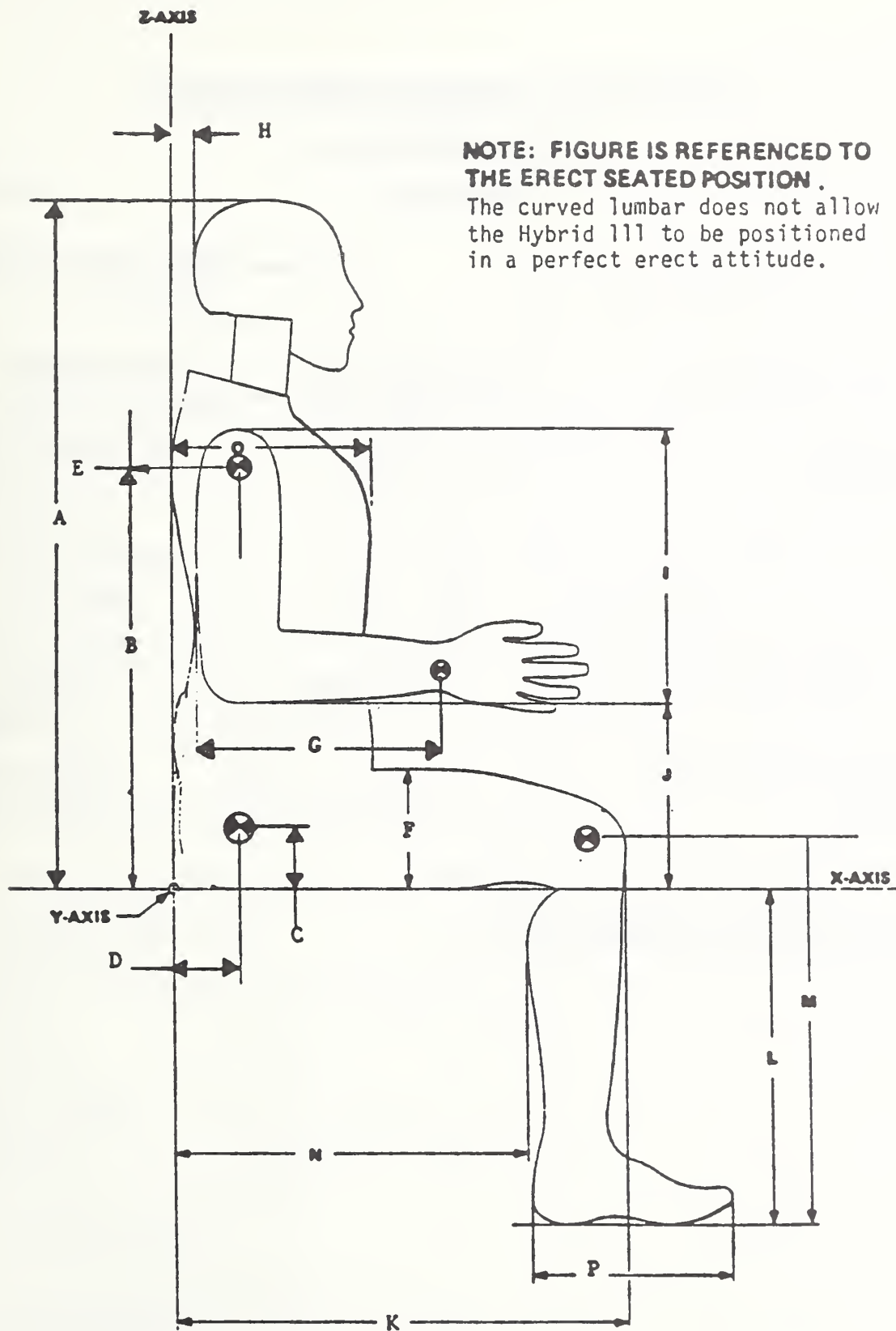
NOTE: The "H" point is located 1.83 inches forward and 2.57 inches down from the center of the pelvis angle reference hole.





**NOTE: FIGURE REFERENCED  
TO THE ERECT SEATED  
POSITION .**  
The curved lumbar does  
not allow the Hybrid III  
to be positioned in a  
perfect erect attitude.

**HYBRID III Exterior Body Dimensions - Front View**



HYBRID III Exterior Body Dimensions - Side View

TRANSPORTATION RESEARCH CENTER OF OHIO

HEAD DROP TEST

HYBRID III

09-OCT-87

VRTC

45C25HD1

HY3 SN45 HEAD DROP CAL 25

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78 DEG. F	70.20 DEG. F
RELATIVE HUMIDITY	10% - 70%	30.00 %
PEAK RESULTANT ACCELERATION	225 - 275 G	257.57 G
PEAK LATERAL ACCELERATION	15 G MAX	4.48 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN *Chas. Middleton*

TRANSPORTATION RESEARCH CENTER OF OHIO

NECK EXTENSION TEST

HYBRID III

3 AXIS NECK TRANSDUCER

09-OCT-87

VRTC

45C25NE1

HY3 SN45 CAL25 NECK EXTENSION

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	69 - 72 DEG. F	70.50 DEG. F
RELATIVE HUMIDITY	10% - 70%	34.00 %
IMPACT VELOCITY	19.50 - 20.30 FPS	19.50 FPS
PENDULUM DECELERATION	10 MS   17.20 - 21.20 G	19.99 G
	20 MS   14.00 - 19.00 G	16.11 G
	30 MS   11.00 - 16.00 G	14.35 G
MAX PENDULUM G ABOVE 30 MS	22 G MAX	14.34 G
DECELERATION-TIME CURVE DECAY TIME TO 5 G	38 - 46 MS	38.38 MS
D PLANE	MAX   81 - 106 DEG.	94.63 DEG.
ROTATION	TIME   72 - 82 MS	81.75 MS
MOMENT ABOUT OCCIPITAL	MIN   -59.0/-39.0 FT.LB	-55.61 FT.LBS
CONDYLE	TIME   65 - 79 MS	71.88 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO	147 - 174 MS	167.00 MS
NEGATIVE MOMENT-TIME CURVE DECAY TIME TO ZERO	120 - 148 MS	143.38 MS

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN *Chas. Middleton*



TRANSPORTATION RESEARCH CENTER OF OHIO

NECK FLEXION TEST

HYBRID III

3 AXIS NECK TRANSDUCER

09-OCT-87

VRTC

45C25NF1

HY3 SN45 CAL25 NECK FLEXION

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	69 - 72 DEG. F	70.30 DEG. F
RELATIVE HUMIDITY	10% - 70%	35.00 %
IMPACT VELOCITY	22.6 - 23.4 FPS	23.19 FPS
PENDULUM	10 MS   22.50 - 27.50 G	23.47 G
DECELERATION	20 MS   17.60 - 22.60 G	20.11 G
	30 MS   12.50 - 18.50 G	15.58 G
MAX PENDULUM G ABOVE 30 MS	29 G MAX	15.52 G
DECELERATION-TIME CURVE		
IDECELY TIME TO 5 G	34 - 42 MS	38.63 MS
D PLANE	MAX   64 - 78 DEG.	72.91 DEG.
ROTATION	TIME   57 - 64 MS	64.00 MS
MOMENT ABOUT OCCIPITAL	MAX   65 - 80 FT.LBS	71.69 FT.LBS
CONDYLE	TIME   47 - 58 MS	53.00 MS
ROTATION ANGLE-TIME CURVE		
IDECELY TIME TO ZERO	113 - 128 MS	127.00 MS
POSITIVE MOMENT-TIME CURVE		
IDECELY TIME TO ZERO	97 - 107 MS	105.13 MS

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN

*Chas. Middleton*

TRANSPORTATION RESEARCH CENTER OF OHIO

THORAX IMPACT TEST

HYBRID III

10-OCT-87

VRTC

45C25TH1

HY3 SN45 CAL 25 H.S.THORAX 01

	HIGH SPEED TEST	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	69 - 72 DEG. F	71.50 DEG. F
RELATIVE HUMIDITY	10% - 70%	35.00 %
PENDULUM VELOCITY	21.6-22.4 FT/SEC	22.22 FT/SEC
MAXIMUM DEFLECTION	2.50 - 2.86 INCHES	2.75 INCHES
MAXIMUM RESISTIVE FORCE	1080 - 1245 POUNDS	1219.4 POUNDS
INTERNAL HYSTERESIS	69% - 85%	74.5%

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN *Chas. Middleton*

TRANSPORTATION RESEARCH CENTER OF OHIO

KNEE IMPACT TEST

HYBRID III

09-OCT-87

LEFT  
VRTC

KNEE  
45C25LK1

HY3 SN45 L.KNEE 11LB CAL 25

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78 DEG. F	70.20 DEG. F
RELATIVE HUMIDITY	10% - 70%	30.00 %
PROBE VELOCITY	6.8 - 7.0 FT/SEC	6.96 FT/SEC
PEAK KNEE IMPACT FORCE	996 - 1566 LBS.	1349.73 LBS.
PROBE WEIGHT	11.0 LBS.	

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN

*Chas. Middleton*

## TRANSPORTATION RESEARCH CENTER OF OHIO

## KNEE IMPACT TEST

HYBRID III

09-OCT-87

RIGHT KNEE  
VRTC 45C25RK1

HY3 SN45 R.KNEE 11LB CAL 25

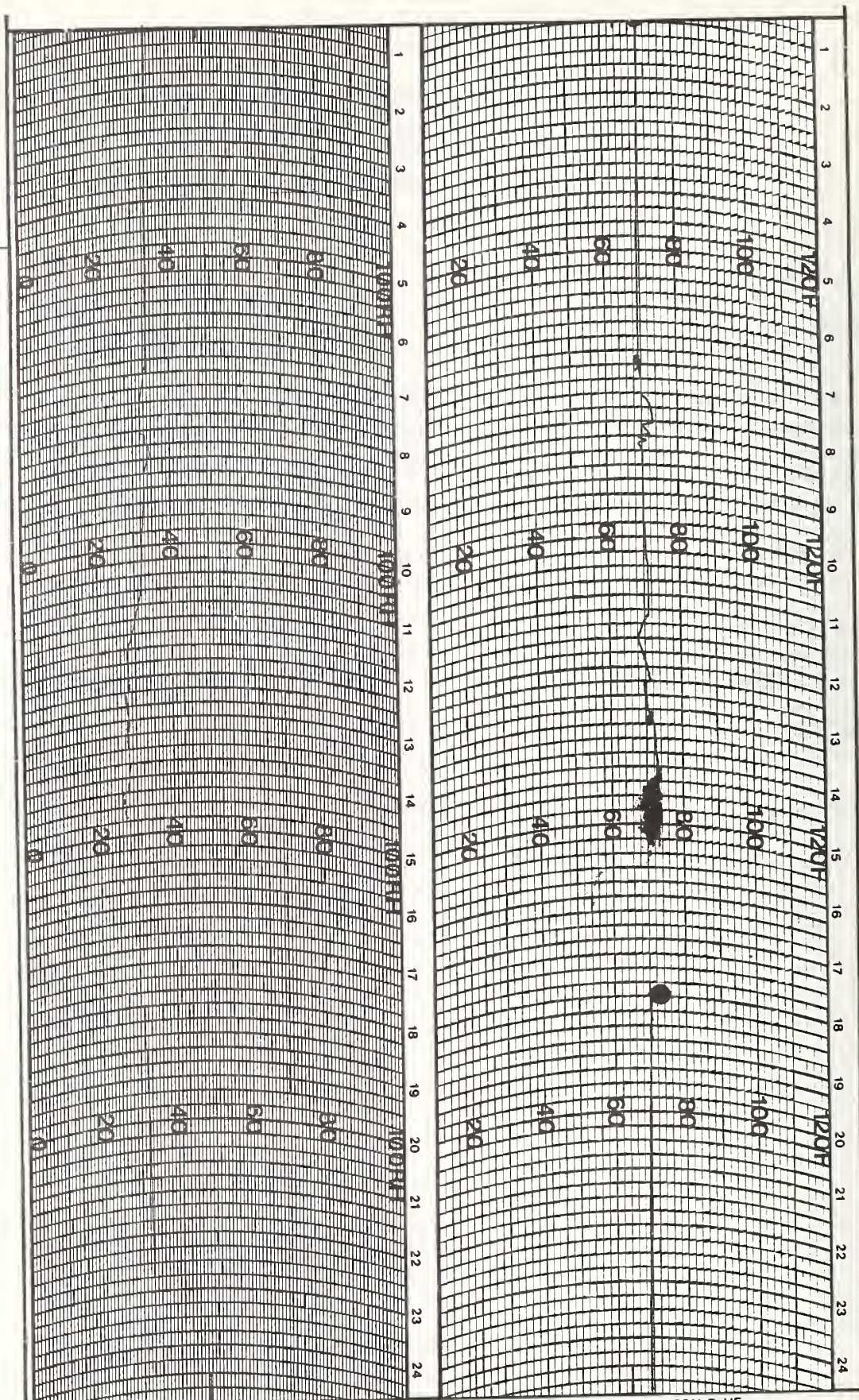
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78 DEG. F	70.30 DEG. F
RELATIVE HUMIDITY	10% - 70%	30.00 %
PROBE VELOCITY	6.8 - 7.0 FT/SEC	6.90 FT/SEC
PEAK KNEE IMPACT FORCE	996 - 1566 LBS.	1396.11 LBS.
PROBE WEIGHT	11.0 LBS.	

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN

*Chas. Middle*





WEATHER MEASURE  
 P.O. BOX 41257  
 SACRAMENTO, CA. 95841  
 PHONE (916) 481-7565

HYGROTHERMOGRAPH  
 1 DAY

CHART # C311 D HF  
 PART # 699123

STATION

LEBAND DATE ON 10-11-87

DATE OFF 10/12/87

TL 242 .5266

Sarkey, J.

Vehicle barr  
testing wit

Form DOT F 1720.  
FORMERLY FORM DOT

DOT LIBRARY



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